ABSTRACT

Input-output coefficients for processing green beans, lima beans, leafy greens, okra, southern peas, and squash were used to derive five plant models for each vegetable (except okra, for which three models were derived). Finished product processing rates of 1,500, 6,000, 12,000, 18,000 and 22,500 pounds per hour were examined. Three season lengths, two raw product prices, and three finished product prices were included to analyze their effects on costs and returns.

The objective of this study was to determine whether initial investment in vegetable freezing plants could be recovered in 10 years. Results indicated that investment in single-product freezing operations could be recovered with at least one combination of raw and finished product prices, season length, and processing rate for all of the vegetables except squash. Okra was the only vegetable indicating profitability with an hourly processing rate as low as 6,000 pounds.

Key words: Vegetables, processing, efficiency, freezing plants, frozen vegetables.

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402

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Washington, D.C. 20250 April 1971

SUMMARY AND CONCLUSIONS

Vegetables produced in the South, most of which are sold in the fresh market, might have a new outlet if food processing in the region were increased. This study of model vegetable freezing plants indicates that such plants might be operated profitably at certain levels of plant size and prices.

Plant models with five hourly output capacities, three processing season lengths, two raw product prices, and two finished product prices were used to derive costs and returns from operating single-product processing plants. The vegetables processed were green beans, lima beans, leafy greens, okra, southern peas, and squash.

Net returns were calculated for each plant model at all combinations of prices and season lengths. The capital value in the first year was determined by discounting net returns over a 10-year period, plus the discounted salvage value of buildings and equipment. Annual net returns were assumed to remain constant throughout the 10 years.

Freezing operations were considered profitable if the capital value was greater than the initial investment, excluding costs of land and interest on investment. Results of the study indicated that all of the vegetables except squash were profitable at one or more combinations of plant size, prices, and season length.

Green bean freezing plants were profitable at more combinations (19 out of 90) of plant size and prices than any of the other vegetables. Green beans were profitable when season length was 700 hours or more and packout capacity was at least 12,000 pounds per hour. However, they were profitable at this level of processing only in the models with the lowest raw product price and highest finished product price.

Lima bean freezing plants were indicated to be profitable at six combinations of plant size and prices, okra at seven, and southern peas at 13. Freezing of leafy greens became profitable at two combinations of plant size and product prices.

Land costs were not included in the analysis because of the wide variations in land values. However, this omission is not considered to be critical since land costs would be a minor part of the total investment; and appreciation in land values would tend to offset the opportunity costs of land. Hence, there would be very little, if any, negative effect upon the profitability of the investment.

This study evaluated all investments in a single-product context. Most vegetable freezing plants process more than one product and thereby benefit from the economies associated with jointly used inputs. For this reason, some single-product investments could be expected to become profitable when incorporated with one or more other products.

The supply of raw product was assumed in this study but would be a critical factor in evaluating the feasibility of building a new processing plant or expanding an existing facility.

The demand for frozen vegetables is a primary factor in the profitability of a freezing plant. Frozen vegetables must compete with canned and fresh vegetables for the consumer's dollar. Consumer acceptance is so vital that a market outlet--regional, national, or international--must be established before a large freezing plant could be constructed in the South and expected to operate at a profitable level.

COMMERCIAL FREEZING OF SIX VEGETABLE CROPS IN THE SOUTH

Factors Affecting Economic Feasibility of Single-Product Operations

by

John R. Brooker and James L. Pearson*

INTRODUCTION

Production of vegetables in the South has traditionally been oriented toward fresh market outlets. The possibility of increasing quantities sold to processors has been discussed with varying degrees of enthusiasm by both farmers and processors. Expansion of food processing in the South depends primarily on three factors: Sufficient quantities of raw product at mutually acceptable prices, ability of the processing plant to operate efficiently, and ability of the plant to sell its products.

To evaluate the profitability of large, modern vegetable freezing operations, this study assumed that sufficient quantities of raw products would be available. To substantiate this assumption, raw product prices were selected to represent prices received by producers in other major producing areas. Corollary assumptions were implied with respect to yields and production costs.

The second factor, ability to operate efficiently, was the major focal point of this analysis. Six vegetables--green beans, lima beans, leafy greens, okra, southern peas, and squash--which are of considerable importance in regional or national consumption, and suitable for production in the South, were selected for an analysis of factors affecting the economic feasibility of vegetable freezing operations. In this study, a processing activity was considered profitable if it returned the investment cost plus the market rate of interest on invested capital less the plant's salvage value by the end of a 10-year planning horizon.

The ability of a new processing plant to sell its product would probably be the most difficult of the three assumptions to satisfy. An existing company with well-established markets could invest in a new facility and know reasonably well what its sales potential would be. A new firm without established markets would be facing a very competitive market where demand is already being met by existing suppliers and only through vigorous sales effort could entry into the market be obtained.

The objective of this study was to determine the effects of processing plant size, season length, finished product price, and raw product price on the economic feasibility of investments in vegetable freezing plants. Only single-product plants have been analyzed in this study.

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Further research needs to be done on the potential availability of raw product for processing in the South, and on marketing arrangements between growers and processors that will satisfy the requirements of both groups.

PLANT MODELS FOR VEGETABLE FREEZING

Input-output coefficients for processing the six vegetables selected for this study were published by the Southern Regional Marketing Research Technical Committee. 1/ Economic-engineering methodology and surveys of actual operations were used to develop these coefficients. This basic data reference describes the flow of product, equipment, buildings, and other input requirements for each model plant.

Five plant models, with hourly processing rates of 1,500, 6,000, 12,000, 18,000, and 22,500 pounds of finished product, were derived for each vegetable except okra. Model plants for okra did not include the two largest sizes. The smallest of the model plants is an obviously inefficient size for a single-product processing plant; the largest is larger than most existing plants in the South.

To illustrate the effects of varying the total output within each plant model, three processing season lengths were associated with each plant model. Model plants processing green beans were analyzed with seasons of 500, 700, and 900 hours; lima beans, leafy greens, and southern peas, seasons of 300, 500, and 700 hours; and okra and squash, seasons of 100, 300, and 500 hours.

The fluidized freezing technique was selected for green beans, lima beans, okra, southern peas, and squash, which are suitable for individual quick freezing (hereafter I.Q.F.). Leafy greens are the only vegetable in this study which was not suitable for I.Q.F. techniques. 2/ Since leafy greens must be packaged prior to freezing, rack tunnel freezers were used in these model freezing plants.

Packaging was limited to three containers: 10-ounce retail cartons, 20-ounce retail poly (polyethylene) bags, and 2-1/2-pound institutional cartons. The total U.S. frozen vegetable pack by size of container as published by the National Association of Frozen Food Packers 3/ was used to derive the distribution of finished product among these three containers (table 1). Green beans, lima beans and southern peas were packaged 50 percent in 10-ounce cartons, 25 percent in 2-1/2-pound cartons, and 25 percent in 20-ounce poly bags. Leafy greens, okra, and squash were packaged 65 percent in 10-ounce cartons and 35 percent in 2-1/2-pound cartons.

Automated packaging techniques specifically adapted for I.Q.F. vegetables were used for all of the containers. For the plants freezing leafy greens, automatic carton fillers were used to fill the cartons prior to freezing.

1/ Pearson, James L., and John R. Brooker (eds.). Planning Data for Marketing Selected Fruits and Vegetables in the South: Part II--Freezing Handbook. Sou. Cooperative Ser. Bul. 150, N.C. State Univ., Dec. 1969.

2/ Some processors are using I.Q.F. for small amounts of certain types of leafy greens, but feasibility of the process has not been verified.

3/ National Association of Frozen Food Packers. Frozen Food Pack Statistics, 1968. Washington, D.C., April 1969.

Table 1.--Percentage distribution by weight of vegetables packaged in three types of containers, model plants freezing specified vegetables

Vegetable	Retail containers		2-1/2-lb. institutional cartons
	10-oz. cartons	20-oz. poly bags	
	Percent		
Green beans 1/	50	25	25
Lima beans 2/	50	25	25
Leafy greens 3/	65	--	35
Okra	65	--	35
Southern peas 4/	50	25	25
Squash 5/	65	--	35

1/ Includes regular cut, french cut, and whole.
2/ Includes baby, emerald, and fordhook.
3/ Includes collards, mustard greens, and turnip greens.
4/ Includes black-eyed, creme, crowder, field, lary, purple hull, white acre, etc.
5/ Includes all summer type squash.

Initial Investment

Initial investment requirements for buildings and equipment are summarized in table 2. Investment in land was not estimated because of the wide variation of land values. As would be expected, investment requirements increased as plant size increased. Requirements for initial investment also increased as season length was increased. This was caused by the enlarged freezer storage capacity required by a larger annual volume. It was specified that product sales be evenly distributed throughout the year with no carryover, thus requiring larger storage capacity with larger annual packouts.

Freezer storage area was fixed at five alternative capacities--1.125, 3.400, 5.700, 11.400, and 22.900 million pounds. The size selected for each plant model was based on the total pack less the quantity sold during the processing season. The initial investment for each plant model (table 2) shows where it was necessary to advance to the next larger freezer storage size. The 1,500-pounds-per-hour model for the six vegetables included the same freezer storage capacity for all lengths of season. Increased cost for bulk bins and pallets was the only adjustment necessary as season length and annual volume increased. However, with the 6,000-pounds-per-hour model for green beans it was necessary to advance to the 3,400,000-pound freezer storage capacity when season length increased from 700 to 900 hours. This trend applied to all of the larger model plants--as annual packout increased with longer season, it was

Table 2.--Initial investment in building and equipment, by length of season and hourly processing capacity, model plants freezing specified vegetables

Vegetable and length of season	Hourly finished product capacity				
	1,500 pounds	6,000 pounds	12,000 pounds	18,000 pounds	22,500 pounds
	Dollars				
Green beans:					
500 hours	575,008	1,182,636	1,812,255	2,534,298	3,193,437
700 hours	575,557	1,217,936	1/2,205,243	2,616,890	1/3,441,914
900 hours	581,099	1/1,341,800	2,212,241	1/3,154,429	3,462,911
Lima beans:					
300 hours	543,776	967,422	1,367,520	1,720,220	2,019,075
500 hours	544,226	969,230	1/1,529,976	1/2,084,401	1/2,357,687
700 hours	544,537	970,467	1,539,405	2,098,539	2,371,875
Leafy greens:					
300 hours	453,911	1,097,238	1,534,543	2,425,465	2,710,369
500 hours	454,372	1,099,083	1/1,666,814	1/2,751,558	1/3,037,846
700 hours	454,691	1,100,342	1,669,334	2,755,338	3,042,564
Okra:					
100 hours	646,175	864,835	1,371,592	---	---
300 hours	646,783	1/1,042,561	1/1,569,057	---	---
500 hours	647,248	1,044,406	1/1,718,637	---	---
Southern peas:					
300 hours	559,072	975,816	1,369,352	1,735,236	2,034,049
500 hours	559,522	977,624	1/1,531,807	1/2,099,417	1/2,372,561
700 hours	559,833	978,861	1,541,236	2,113,555	2,386,749
Squash:					
100 hours	647,720	846,775	1,324,470	2,058,421	2,286,450
300 hours	648,328	1/1,024,501	1/1,521,935	1/2,228,914	1/2,471,746
500 hours	648,793	1,026,346	1/1,671,515	1/2,582,700	1/2,833,011

1/ Indicates larger investment in freezer storage capacity required than that of the preceding season length.

Source of basic data: Sou. Cooperative Ser. Bul. 150, tables 2, 4, 5, 8, 9, 10, 14, 16, 17, 18, 20, 22, 23, 24, 27, 28, 29, 30, 36, 37, 39, 41, 42, 45, 47, 48, 49, 57, 59, and 60.

necessary to increase the storage capacity. For one okra processing plant and three squash processing plants, it was necessary to increase the storage capacity for both increments in season length.

Since I.Q.F. vegetables can be stored in bulk containers and packaged at a rate different from the processing rate, two criteria were established for selecting the most desirable packaging rate. The criteria were (1) maximizing the length of employment for workers when packaging costs were not increased more than 10 percent and (2) maintaining year-round packaging capabilities to comply with even sales distribution throughout the year. These specifications required a large proportion of the quantity in storage to be in bulk containers and hence a larger investment in bulk bins than would be required with some alternative specifications concerning sales and employment conditions.

Packaging costs per pound of finished product at 90 percent efficiency 4/ are shown in figures 1, 2, and 3. For 10-ounce cartons (fig. 1), once the volume reaches 5 million pounds, the economies associated with increasing volume become less important for all line sizes. Except for the smallest of annual volumes, packaging at 6,000 pounds per hour was shown to be the most economical packaging rate within the range of annual volumes considered in this study.

For 2-1/2-pound cartons (fig. 2), the 12,000-pounds-per-hour packaging rate provided the least costs except at the lower annual volumes, with the 6,000-pounds-per-hour rate only slightly higher. The effects of higher fixed investment and increased efficiency with increasing volume are dramatically shown at 18,000 pounds per hour. Further important economies were available to the largest packaging line at annual volumes above 4 million pounds.

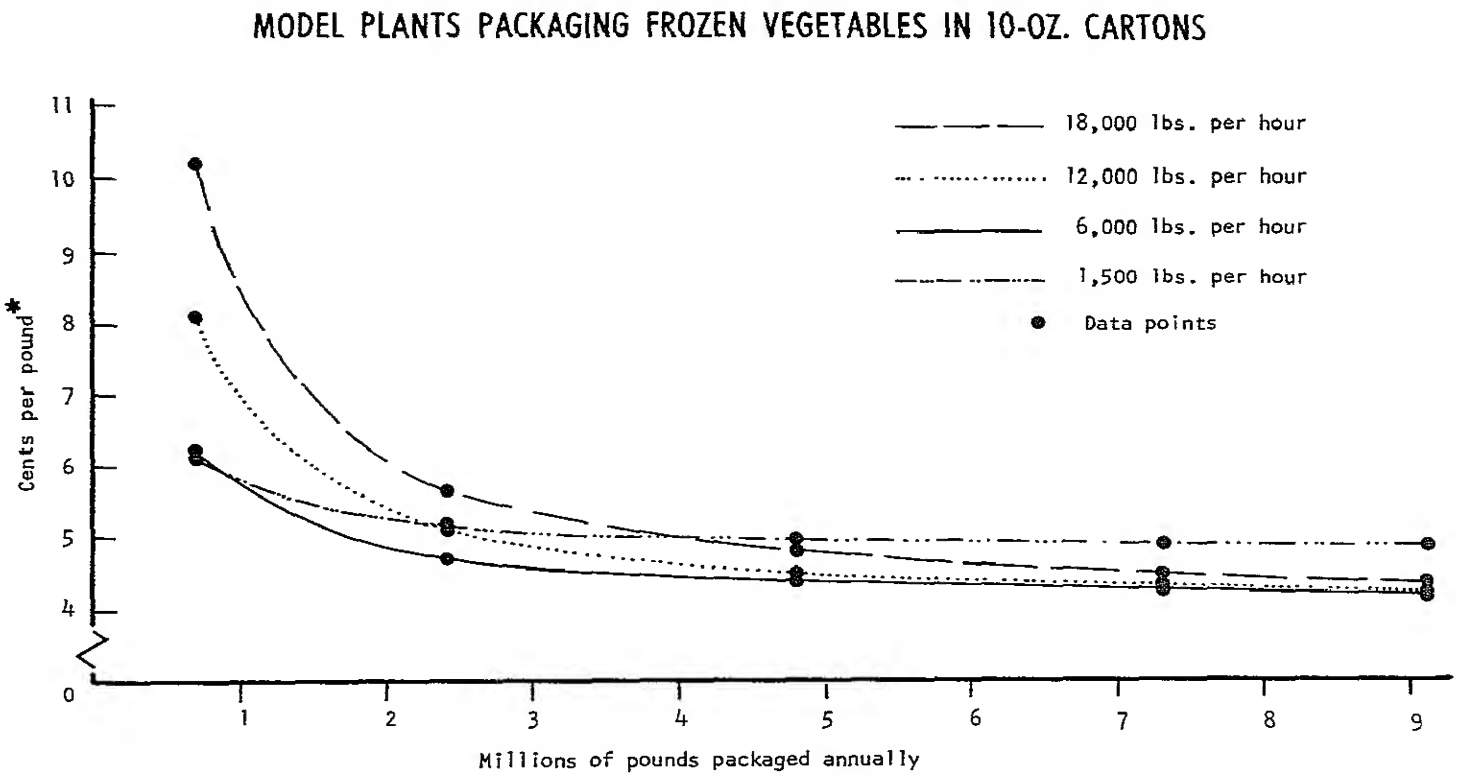
Costs for packaging in 20-ounce poly bags (fig. 3) again showed a tendency to level off after reaching a volume of approximately 4 million pounds. Packaging rates of 6,000, 12,000, and 18,000 pounds per hour had costs that were very close together for large annual packs.

To comply with the criteria for employment and sales previously given, the packaging rate of 6,000 pounds per hour for each container size was selected to be used by all model plants for I.Q.F. products.

Operating Costs

Total operating cost was divided into two categories--annual and hourly. Annual operating costs include those expenses which are incurred on an annual basis or are related to the annual packout. Hourly operating costs are those incurred directly with each hour of operation.

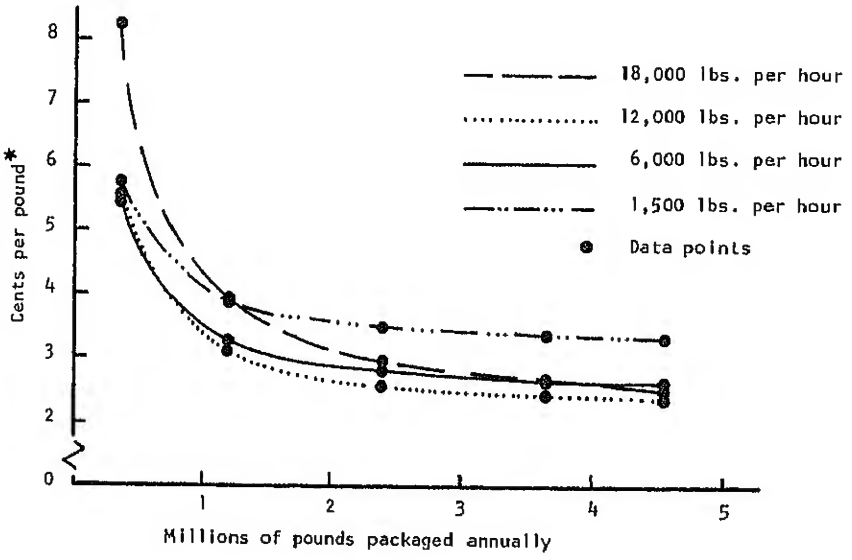
4/ Efficiency as used in this context means the percentage of rated capacity.



*AVERAGE COST PER POUND OF FINISHED PRODUCT.

Figure 1

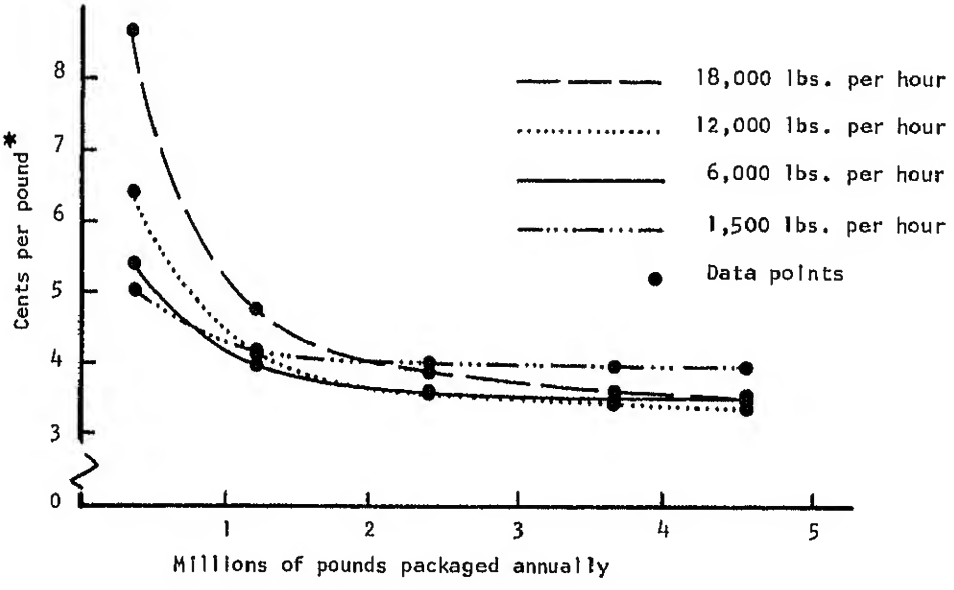
MODEL PLANTS
PACKAGING FROZEN VEGETABLES IN 2½-LB. CARTONS



*AVERAGE COST PER POUND OF FINISHED PRODUCT.

Figure 2

MODEL PLANTS PACKAGING FROZEN VEGETABLES IN 20-OZ. POLY BAGS



*AVERAGE COST PER POUND OF FINISHED PRODUCT.

Figure 3

Annual Operating Costs

These costs include salaries, brokerage fees, office expenses, property taxes, inventory taxes, interest on operating capital, insurance, annual maintenance, and a miscellaneous category.

Salaried employees as specified for each plant size, regardless of commodity or length of season, are given in table 3. In addition to Social Security, 5 percent has been added to the cost of salaried employees to cover fringe benefits. Totals for this expense category ranged from $25,457 for the smallest plant size up to $206,492 for the largest plant.

Brokerage fees and office expenses varied with the total revenue of each freezing plant and were estimated to be 4 percent and 2 percent, respectively, of total revenue. Advertising, travel expenses, and other miscellaneous expenses were covered in a miscellaneous category which was also estimated at 2 percent of total revenue. Inventory taxes were estimated at 0.25 percent of total revenue.

Property taxes and insurance were estimated to be 1 percent of initial investment while annual maintenance was estimated at 1.5 percent of initial investment. Interest 5/ on operating capital was the second largest annual operating cost and could vary even more widely than in this analysis because of factors such as inventory size, accounts receivable, and other highly variable operational conditions. Interest on operating capital was estimated at 8 percent of total hourly operating costs.

Six annual operating costs were obtained for each plant size and season length. This was necessary since these costs varied with season length as well as price of raw product and total revenue. 6/ Average annual operating costs per pound of finished product as related to packout capacity, season length, raw product price, and finished product price for each vegetable are given in tables 4-9. (See appendix tables 1-18 for total annual operating costs).

For green beans, lima beans, okra, southern peas, and squash, average annual operating costs increased as raw product and finished product prices increased for a given plant size and season length. Even when raw product prices remain unchanged, the average annual operating cost increased as finished product prices increased. Leafy greens deviated from this pattern slightly, mainly because of the smaller operating capital requirements for financing raw product purchases compared with the other five vegetables.

Hourly Operating Costs

These costs are those items that vary directly with the hours of operation. They include such items as hourly labor, containers, utilities, 7/ supplies, and

5/ Interest on long-term capital for initial investment excluded.

6/ Total revenue affects annual operating cost because cost items such as brokerage fees are a percentage of sales.

7/ Note that this includes disposal of effluent at a per unit cost through locally available facilities.

Table 3.--Annual operating cost of salaried employees, by number of employees and hourly processing capacity, model vegetable-freezing plants

Employee	Hourly finished product capacity									
	1,500 pounds		6,000 pounds		12,000 pounds		18,000 pounds		22,500 pounds	
	Employees	Cost	Employees	Cost	Employees	Cost	Employees	Cost	Employees	Cost
	No.	Dol.	No.	Dol.	No.	Dol.	No.	Dol.	No.	Dol.
General manager	1	15,000	1	17,500	1	20,000	1	22,500	1	25,000
Sales manager	-	---	1	12,500	1	15,000	1	17,500	1	20,000
Production manager	-	---	-	---	1	12,000	1	14,000	1	16,000
Plant superintendent	-	---	1	9,000	1	9,000	1	10,000	1	11,000
Field superintendent	-	---	1	10,000	1	11,500	1	13,000	1	14,000
Personnel manager	-	---	-	---	1	8,000	1	8,500	1	9,000
Office manager	-	---	-	---	-	---	1	8,500	1	9,000
Secretary	1	4,500	1	4,500	2	4,500	2	4,500	2	4,500
Clerk	-	---	2	3,800	3	3,800	4	3,800	5	3,800
Typist	-	---	-	---	1	3,800	2	3,800	2	3,800
Plant engineer	-	---	-	---	1	8,000	1	8,500	1	9,000
Mechanic	-	---	1	7,500	-	---	1	7,000	1	7,000
Yield control	-	---	-	---	1	7,000	1	7,500	1	8,000
Quality control supervisor	-	---	1	7,500	1	7,000	1	7,500	1	8,000
Custodian	1	4,000	1	4,250	1	4,500	1	4,750	1	5,000
Night watchman	-	---	1	5,000	1	5,250	1	5,500	1	5,700
Warehouse supervisor	-	---	1	7,500	1	7,500	1	7,750	1	8,000
Total		23,500		92,850		138,950		174,300		190,300
Social security		782		3,602		5,282		6,442		6,677
Fringe benefits		1,175		4,643		6,948		8,712		9,515
		25,457		101,095		151,180		189,457		206,492

Cooperative Ser. Bul. 150, table 6.

Table 4.--Model plants freezing green beans: Average annual operating cost per pound of finished product, by hourly finished product capacity, season length, finished product price, and raw product price

Hourly finished product capacity and season length	18.50 cents per pound of finished product		20.25 cents per pound of finished product		22.00 cents per pound of finished product	
	$100 per ton of raw product	$125 per ton of raw product	$100 per ton of raw product	$125 per ton of raw product	$100 per ton of raw product	$125 per ton of raw product
	Cents per pound					
1,500 pounds:						
500 hours	9.55	9.67	9.69	9.81	9.84	9.96
700 hours	7.57	7.69	7.72	7.83	7.86	7.98
900 hours	6.48	6.60	6.62	6.74	6.77	6.89
6,000 pounds:						
500 hours	7.81	7.93	7.96	8.08	8.10	8.22
700 hours	6.33	6.45	6.48	6.59	6.62	6.74
900 hours	5.56	5.68	5.71	5.83	5.83	5.95
12,000 pounds:						
500 hours	6.43	6.54	6.57	6.69	6.72	6.83
700 hours	5.48	5.60	5.63	5.74	5.77	5.89
900 hours	4.80	4.91	4.94	5.06	5.08	5.20
18,000 pounds:						
500 hours	5.89	6.01	6.03	6.15	6.18	6.29
700 hours	4.91	5.03	5.06	5.18	5.20	5.32
900 hours	4.50	4.62	4.64	4.76	4.79	4.91
22,500 pounds:						
500 hours	5.56	5.69	5.70	5.84	5.84	5.99
700 hours	4.75	4.87	4.89	5.01	5.04	5.15
900 hours	4.22	4.34	4.37	4.48	4.51	4.63

Source of basic data: Sou. Cooperative Ser. Bul. 150, tables 6 and 7.

Table 5.--Model plants freezing lima beans: Average annual operating cost per pound of finished product, by hourly finished product capacity, season length, finished product price, and raw product price

Hourly finished product capacity and season length	20.25 cents per pound of finished product		22.25 cents per pound of finished product		24.25 cents per pound of finished product	
	$175 per ton of raw product	$200 per ton of raw product	$175 per ton of raw product	$200 per ton of raw product	$175 per ton of raw product	$200 per ton of raw product
	Cents per pound					
1,500 pounds:						
300 hours	14.40	14.51	14.57	14.67	14.73	14.84
500 hours	9.69	9.79	9.85	9.96	10.02	10.12
700 hours	7.79	7.90	7.96	8.06	8.12	8.23
6,000 pounds:						
300 hours	11.28	11.38	11.44	11.55	11.61	11.71
500 hours	7.91	8.02	8.08	8.18	8.24	8.35
700 hours	6.46	6.57	6.63	6.73	6.79	6.90
12,000 pounds:						
300 hours	9.01	9.12	9.18	9.28	9.34	9.45
500 hours	6.66	6.77	6.82	6.93	6.99	7.10
700 hours	5.58	5.69	5.75	5.85	5.91	6.02
18,000 pounds:						
300 hours	8.00	8.10	8.16	8.27	8.33	8.43
500 hours	6.11	6.21	6.27	6.38	6.44	6.54
700 hours	5.17	5.28	5.34	5.44	5.50	5.61
22,500 pounds:						
300 hours	7.41	7.51	7.57	7.68	7.74	7.84
	5.71	5.81	5.87	5.98	6.04	6.14
		4.99	5.05	5.15	5.21	5.32

ive Ser. Bul. 150, tables 6 and 7.

Table 6.--Model plants freezing leafy greens: Average annual operating cost per pound of finished product, by hourly finished product capacity, season length, finished product price, and raw product price

Hourly finished product capacity and season length	13.60 cents per pound of finished product		14.60 cents per pound of finished product		15.60 cents per pound of finished product	
	$40 per ton of raw product	$60 per ton of raw product	$40 per ton of raw product	$60 per ton of raw product	$40 per ton of raw product	$60 per ton of raw product
	Cents per pound					
1,500 pounds:						
300 hours	12.43	12.52	12.51	12.61	12.59	12.70
500 hours	8.24	8.34	8.32	8.42	8.41	8.50
700 hours	6.45	6.54	6.53	6.62	6.61	6.71
6,000 pounds:						
300 hours	10.50	10.59	10.58	10.68	10.66	10.76
500 hours	7.02	7.12	7.11	7.20	7.19	7.28
700 hours	5.53	5.63	5.62	5.71	5.70	5.79
12,000 pounds:						
300 hours	8.13	8.23	8.21	8.31	8.29	8.39
500 hours	5.68	5.78	5.77	5.86	5.85	5.95
700 hours	4.57	4.66	4.65	4.74	4.73	4.83
18,000 pounds:						
300 hours	7.45	7.55	7.53	7.63	7.62	7.71
500 hours	5.34	5.44	5.43	5.52	5.51	5.60
700 hours	4.32	4.42	4.40	4.50	4.49	4.58
22,500 pounds:						
300 hours	6.75	6.84	6.83	6.93	6.91	7.01
500 hours	4.88	4.98	4.96	5.06	5.05	5.14
700 hours	3.99	4.09	4.07	4.17	4.15	4.25

Source of basic data: Sou. Cooperative Ser. Bul. 150, tables 6 and 7.

Table 7.--Model plants freezing okra: Average annual operating cost per pound of finished product, by hourly finished product capacity, season length, finished product price, and raw product price

Hourly finished product capacity and season length	23.60 cents per pound of finished product		25.60 cents per pound of finished product		27.60 cents per pound of finished product	
	$60 per ton of raw product	$80 per ton of raw product	$60 per ton of raw product	$80 per ton of raw product	$60 per ton of raw product	$80 per ton of raw product
	Cents per pound					
1,500 pounds:						
100 hours	39.25	39.35	39.42	39.52	39.58	39.68
300 hours	15.09	15.19	15.26	15.36	15.42	15.52
500 hours	10.27	10.37	10.44	10.53	10.60	10.70
6,000 pounds:						
100 hours	27.34	27.43	27.50	27.60	27.67	27.76
300 hours	11.42	11.52	11.59	11.68	11.75	11.85
500 hours	8.00	8.09	8.16	8.26	8.33	8.42
12,000 pounds:						
100 hours	21.37	21.47	21.53	21.63	21.70	21.80
300 hours	9.22	9.31	9.38	9.48	9.55	9.64
500 hours	6.77	6.86	6.93	7.03	7.10	7.19

Source of basic data: Sou. Cooperative Ser. Bul. 150, tables 6 and 7.

Table 8.--Model plants freezing southern peas: Average annual operating cost per pound of finished product, by hourly finished product capacity, season length, finished product price, and raw product price

Hourly finished product capacity and season length	22.00 cents per pound of finished product		24.00 cents per pound of finished product		26.00 cents per pound of finished product	
	$175 per ton of raw product	$200 per ton of raw product	$175 per ton of raw product	$200 per ton of raw product	$175 per ton of raw product	$200 per ton of raw product
	Cents per pound					
1,500 pounds:						
300 hours	14.46	14.57	14.63	14.73	14.79	14.90
500 hours	9.94	10.04	10.10	10.21	10.27	10.37
700 hours	7.99	8.10	8.16	8.26	8.32	8.43
6,000 pounds:						
300 hours	11.43	11.54	11.60	11.70	11.76	11.87
500 hours	8.06	8.17	8.23	8.34	8.39	8.50
700 hours	6.62	6.73	6.79	6.89	6.95	7.06
12,000 pounds:						
300 hours	9.15	9.26	9.32	9.42	9.48	9.59
500 hours	6.80	6.90	6.96	7.07	7.13	7.23
700 hours	5.71	5.81	5.87	5.98	6.04	6.14
18,000 pounds:						
300 hours	8.14	8.25	8.31	8.41	8.47	8.58
500 hours	6.25	6.36	6.41	6.52	6.58	6.69
700 hours	5.31	5.42	5.48	5.58	5.64	5.75
22,500 pounds:						
300 hours	7.55	7.66	7.72	7.82	7.88	7.99
500 hours	5.85	5.95	6.01	6.12	6.18	6.28
700 hours	5.02	5.13	5.19	5.29	5.35	5.46

Source of basic data: Sou. Cooperative Ser. Bul. 150, tables 6 and 7.

Table 9.--*Model plants freezing squash:* Average annual operating cost per pound of finished product, by hourly finished product capacity, season length, finished product price, and raw product price

Hourly finished product capacity and season length	16.30 cents per pound of finished product		17.30 cents per pound of finished product		18.30 cents per pound of finished product	
	$80 per ton of raw product	$100 per ton of raw product	$80 per ton of raw product	$100 per ton of raw product	$80 per ton of raw product	$100 per ton of raw product
	Cents per pound					
1,500 pounds:						
100 hours	38.59	38.68	38.67	38.77	38.75	38.85
300 hours	14.43	14.52	14.51	14.61	14.60	14.69
500 hours	9.63	9.72	9.71	9.80	9.79	9.89
6,000 pounds:						
100 hours	26.54	26.63	26.62	26.71	26.70	26.79
300 hours	10.71	10.81	10.80	10.89	10.88	10.97
500 hours	7.32	7.41	7.40	7.49	7.48	7.57
12,000 pounds:						
100 hours	20.51	20.61	20.59	20.69	20.68	20.77
300 hours	8.50	8.60	8.58	8.68	8.67	8.76
500 hours	6.08	6.17	6.16	6.25	6.24	6.34
18,000 pounds:						
100 hours	18.37	18.46	18.45	18.55	18.53	18.63
300 hours	7.69	7.78	7.77	7.86	7.85	7.95
500 hours	5.65	5.75	5.74	5.83	5.82	5.91
22,500 pounds:						
100 hours	16.35	16.45	16.44	16.53	16.52	16.61
300 hours	6.99	7.09	7.07	7.17	7.16	7.25
500 hours	5.20	5.29	5.28	5.38	5.36	5.46

Source of basic data: Sou. Cooperative Ser. Bul. 150, tables 6 and 7.

raw product. (See appendix tables 1-18 for total hourly operating costs.)

Raw product prices were set at two levels to demonstrate their effect and are based on average prices received by producers in recent years (table 10).

Table 10.--Raw product price and percentage yield of finished product per ton of farm weight, model plants freezing specified vegetables

Vegetable	Price per ton		Finished product as Percentage of raw product
	Low	High	
	Dollars		Percent
Green beans	100	125	85
Lima beans	175	200	1/95
Leafy greens	30	40	83
Okra	60	80	83
Southern peas	175	200	1/95
Squash	80	100	85

1/ Based on shelled farm weight.

Wage rates for laborers as used in this analysis varied from $1.60 per hour for the unskilled workers to $3 for skilled workers. A general labor category included employees who could not be assigned to a particular processing stage (table 11).

The cost of the raw product as a percentage of total hourly operating costs ranged from 37 percent to 57 percent for the plants freezing green beans, 42 to 66 percent for lima beans, 14 to 29 percent for leafy greens, 17 to 38 percent for okra, 48 to 66 percent for southern peas, and 24 to 51 percent for squash.

Average hourly operating cost per pound of finished product (including labor, supplies, utilities, and raw product) as related to plant size, season length, and raw product price is given in tables 12 and 13. As season length increased for the 1,500- and 6,000-pounds-per-hour plants, the cost per pound decreased. However, for green beans and leafy greens, the cost per pound at 12,000 pounds per hour increased with the second season length but decreased with the third season length. This also occurred at 18,000 pounds per hour with southern peas, lima beans, and leafy greens.

Table 11.--Number of employees and wage rates for specified jobs in model vegetable-freezing plants of various sizes

Job description	Hourly finished product capacity					Wage per hour
	1,500 pounds	6,000 pounds	12,000 pounds	18,000 pounds	22,500 pounds	
	Employees					Dollars
Refrigeration mechanic	1	1	1	1	1	2.50
Electrician	-	1	1	2	2	3.00
Tool room clerk	-	-	1	1	1	2.00
Maintenance man	1	1	2	2	3	2.25
Quality Control	1	-	1	2	3	2.00
Cleanup man	1	2	3	4	5	1.60
Warehouseman	1	1	2	3	4	2.00
Forklift operator	1	1	1	2	2	2.10
Boiler attendant	-	1	1	1	1	2.00

Source of basic data: Sou. Cooperative Ser. Bul. 150, table 6.

:en beans, lima beans, and leafy greens: Average hourly operating cost
)urly finished product capacity, season length, and raw product price

Hourly finished product capacity and season length	Raw product price					
	Green beans		Lima beans		Leafy greens	
	$100 per ton	$125 per ton	$175 per ton	$200 per ton	$30 per ton	$40 per ton
	Cents per pound					
1,500 pounds:						
300 hours	---	---	21.81	23.12	13.11	13.72
500 hours	15.93	17.40	17.79	19.10	11.79	12.39
700 hours	15.68	17.16	17.62	18.94	11.22	11.82
900 hours	15.46	16.92	---	---	---	---
6,000 pounds:						
300 hours	---	---	15.94	17.26	8.95	9.55
500 hours	12.70	14.17	15.53	16.85	8.54	9.14
700 hours	12.80	14.27	15.20	16.52	8.37	8.97
900 hours	12.74	14.23	---	---	---	---
12,000 pounds:						
300 hours	---	---	15.00	16.32	7.94	8.27
500 hours	11.63	13.10	14.98	16.29	7.93	8.53
700 hours	11.90	13.37	14.97	16.29	7.79	8.39
900 hours	11.75	13.22	---	---	---	---
18,000 pounds:						
300 hours	---	---	14.87	16.18	7.94	8.55
500 hours	11.65	13.12	14.95	16.27	8.06	8.66
700 hours	11.55	13.02	14.78	16.09	7.88	8.48
900 hours	11.73	13.20	---	---	---	---
22,500 pounds:						
300 hours	---	---	14.69	16.00	7.69	8.30
500 hours	11.38	12.85	14.75	16.07	7.78	8.38
700 hours	11.62	13.10	14.61	15.93	7.64	8.24
900 hours	11.48	12.95	---	---	---	---

Source of basic data: Sou. Cooperative Ser. Bul. 150, tables 6, 11, 12, 13, 15, 19, 21, 25, 31, 32, 33,

Table 13.--Model plants freezing okra, southern peas, and squash: Average hourly operating cost per pound of finished product, by hourly finished product capacity, season length, and raw product price

Hourly finished product capacity and season length	Raw product price					
	Okra		Southern peas		Squash	
	$60 per ton	$80 per ton	$175 per ton	$200 per ton	$80 per ton	$100 per ton
	Cents per pound					
1,500 pounds:						
100 hours	21.22	22.42	---	---	19.95	21.12
300 hours	15.89	17.10	19.13	20.45	15.26	16.44
500 hours	14.98	16.19	18.12	19.44	14.34	15.52
700 hours	---	---	17.66	18.97	---	---
6,000 pounds:						
100 hours	13.29	14.49	---	---	12.27	13.44
300 hours	12.28	13.49	15.89	17.20	11.61	12.78
500 hours	11.88	13.08	15.48	16.80	11.20	12.38
700 hours	---	---	15.31	16.62	---	---
12,000 pounds:						
100 hours	12.16	13.36	---	---	10.96	12.14
300 hours	11.35	12.55	14.89	16.20	10.68	11.86
500 hours	11.34	12.55	14.88	16.20	10.63	11.81
700 hours	---	---	14.75	16.07	---	---
18,000 pounds:						
100 hours	---	---	---	---	11.04	12.21
300 hours	---	---	14.74	16.05	10.57	11.75
500 hours	---	---	14.86	16.17	10.69	11.87
700 hours	---	---	14.68	16.00	---	---
22,500 pounds:						
100 hours	---	---	---	---	10.76	11.94
300 hours	---	---	14.59	15.91	10.39	11.56
500 hours	---	---	14.68	16.00	10.44	11.62
700 hours	---	---	14.54	15.68	---	---

perative Ser. Bul. 150, tables 6, 11, 12, 13, 40, 44, 46, 50, 58, and 62.

The seemingly inconsistent variation in average hourly costs was caused by electrical requirements for freezer storage because of the limited choice among five freezer storage facilities in this study. Within a particular plant model an increase in season length may cause a need for a larger storage freezer, thus increasing the cost of electric power per pound of finished product.

Figures 4-9 illustrate the relationship between plant size and average total operating cost as annual plant volume was increased by increasing the length of the processing season. For all six vegetables the average total operating cost decreased as the volume per year increased.

Average total operating costs decreased rapidly at first as annual volume became larger, then continued to decrease at a decreasing rate. Okra and squash were assumed to have the shortest seasons (100 hours); the extreme inefficiency of a single-product plant with such a short season is obvious. Increasing the annual volume from 135,000 to 675,000 pounds reduced the average total operating cost for the 1,500-pounds-per-hour plants nearly 60 percent.

The economies to be derived from increasing season length of a freezing plant were greater in the distribution of annual costs among a larger packout than from savings with hourly costs.

RETURNS FROM SINGLE-PRODUCT PLANTS

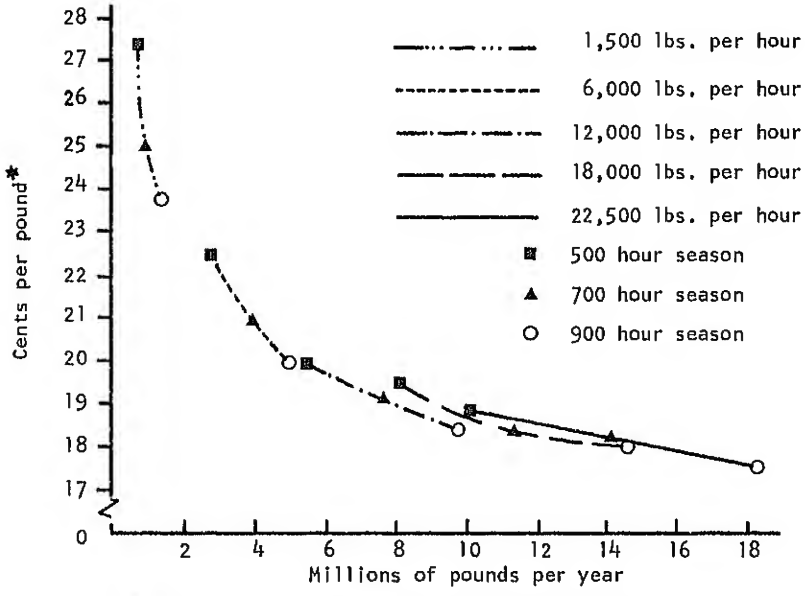
Annual net revenue for single-product freezing plants was related to both plant size and length of processing season. In this analysis, cost reductions per unit of output or economies of size were obtained by two means: first, increasing plant size, and second, increasing the number of processing hours per season. Season length as used here is the same as processing hours per year.

Prices received for the finished product as used in this analysis are given in table 14. For each vegetable, three prices were selected per container size, thus providing a means of illustrating the effects of changes in price on net revenue. These prices were obtained by synthesizing price information from processors in the South and from The Food Institute's Report on Food Markets. 8/

Appendix tables 1-18 list the total revenue, operating cost, and annual net revenue for the various model vegetable-freezing plants. The effect of increasing plant size from 1,500 to 22,500 pounds per hour on costs and revenues is observable in each of these tables. For example, in appendix table 1, total revenue from the sale of green beans with 500-hour seasons ranged from $148,500 at 1,500 pounds per hour to $2,227,500 at 22,500 pounds per hour. Total operating costs for these plants also increased from $184,696 to $1,907,466. In this case, the significance of increasing the plant size was shown by total net revenues increasing from an annual net loss of $36,196 to positive net revenue of $320,034.

8/ American Institute of Food Distribution, Inc. The Food Institute's Report on Food Markets. Washington, D.C., 1968.

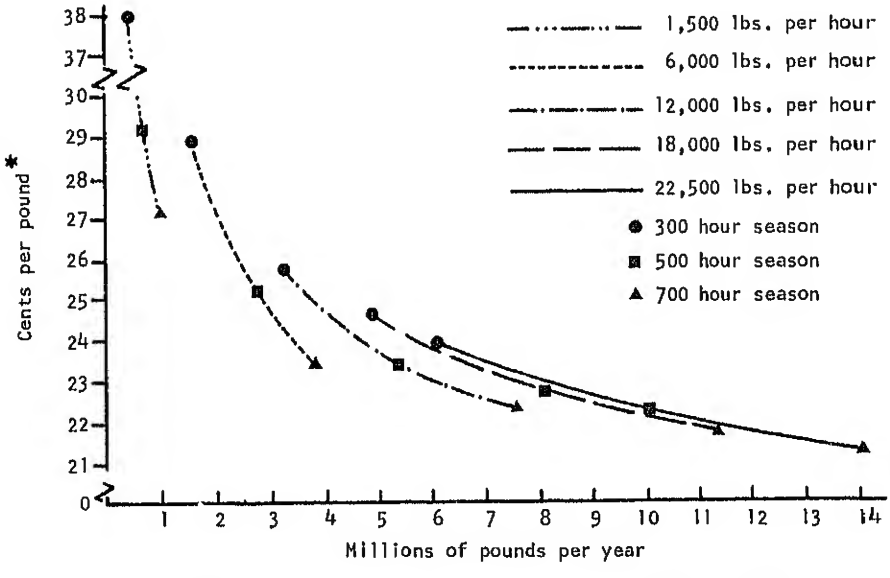
MODEL PLANTS PACKAGING FROZEN GREEN BEANS



*AVERAGE TOTAL OPERATING COST WITH FINISHED PRODUCT PRICE 22 CENTS PER POUND AND RAW PRODUCT PRICE $125 PER TON.

Figure 4

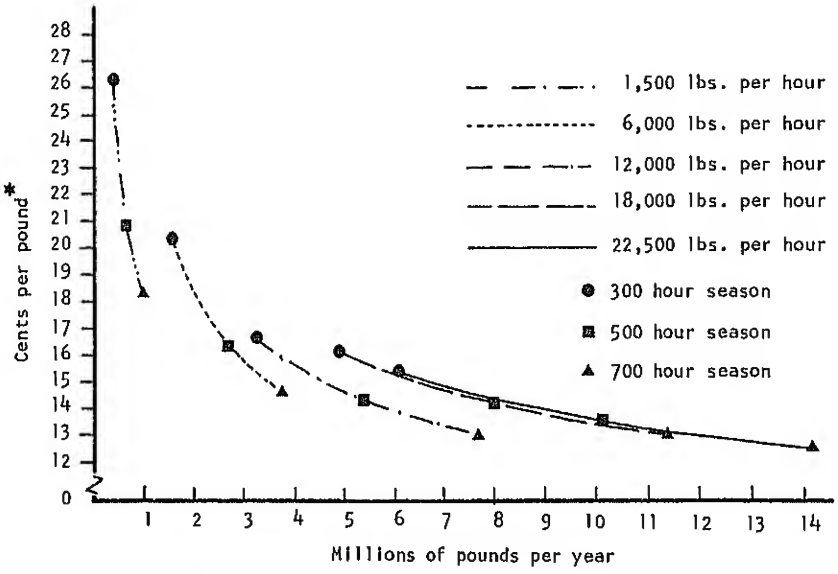
MODEL PLANTS PACKAGING FROZEN LIMA BEANS



*AVERAGE TOTAL OPERATING COST WITH FINISHED PRODUCT PRICE 24.25 CENTS PER POUND AND RAW PRODUCT PRICE $200 PER TON.

Figure 5

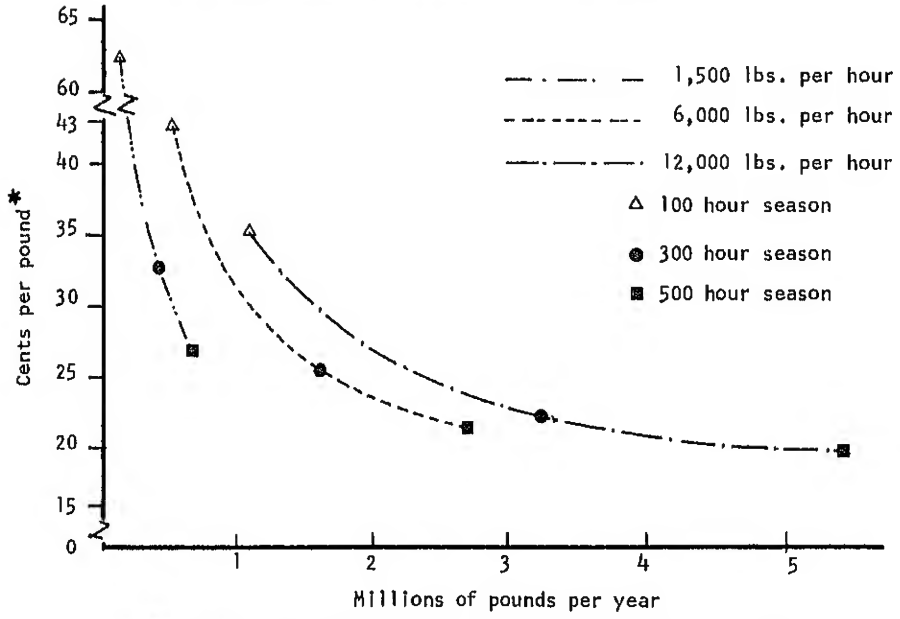
MODEL PLANTS PACKAGING FROZEN LEAFY GREENS



*AVERAGE TOTAL OPERATING COST WITH FINISHED PRODUCT PRICE 15.6 CENTS PER POUND AND RAW PRODUCT PRICE $40 PER TON.

Figure 6

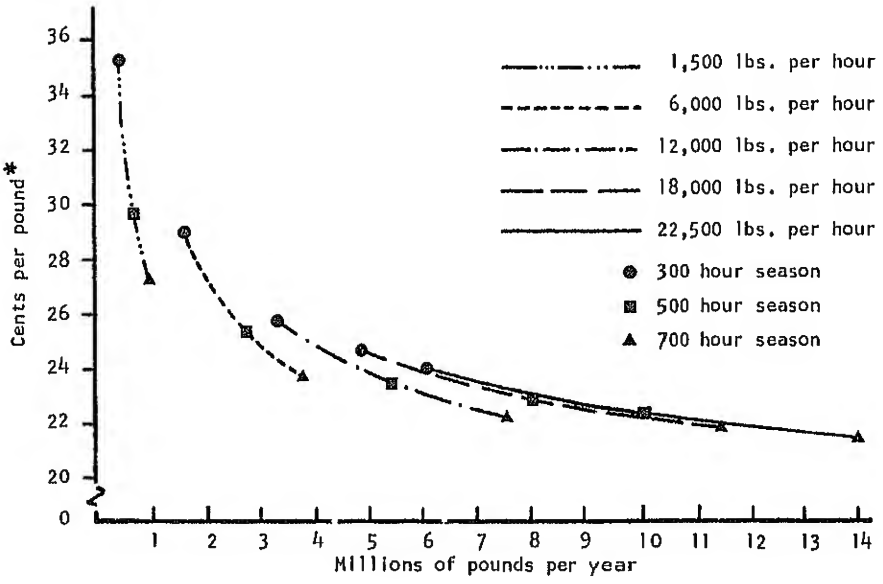
MODEL PLANTS PACKAGING FROZEN OKRA



*AVERAGE TOTAL OPERATING COST WITH FINISHED PRODUCT PRICE 27.6 CENTS PER POUND AND RAW PRODUCT PRICE $80 PER TON.

Figure 7

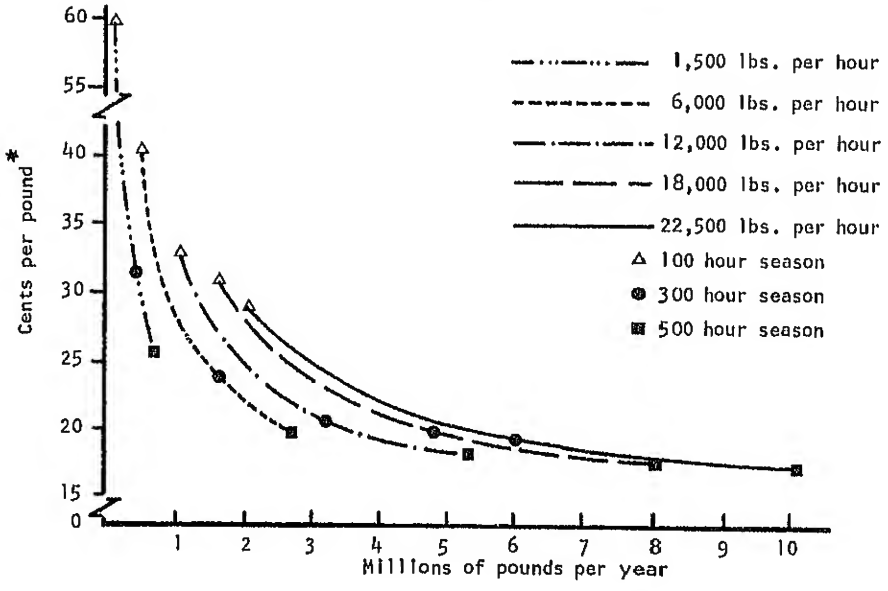
MODEL PLANTS PACKAGING FROZEN SOUTHERN PEAS



* AVERAGE TOTAL OPERATING COST WITH FINISHED PRODUCT PRICE 26 CENTS PER POUND AND RAW PRODUCT PRICE $200 PER TON.

Figure 8

MODEL PLANTS PACKAGING FROZEN SQUASH



*AVERAGE TOTAL OPERATING COST WITH FINISHED PRODUCT PRICE 18.3 CENTS PER POUND AND RAW PRODUCT PRICE $100 PER TON.

Figure 9

Table 14.--Prices received for frozen vegetables by container size, three price levels as used in this analysis, model plants freezing specified vegetables

Vegetable and container	Price level 1	Price level 2	Price level 3
	Cents per pound		
Green beans:			
10-oz. carton	20.00	22.00	24.00
20-oz. poly bag	18.00	20.00	22.00
2-1/2-lb. carton	16.00	17.00	18.00
Weighted average 1/	18.50	20.25	22.00
Lima beans:			
10-oz. carton	21.00	23.00	25.00
20-oz. poly bag	20.00	22.00	24.00
2-1/2-lb. carton	19.00	21.00	23.00
Weighted average	20.25	22.25	24.25
Leafy greens:			
10-oz. carton	15.00	16.00	17.00
2-1/2-lb. carton	11.00	12.00	13.00
Weighted average	13.60	14.60	15.60
Okra:			
10-oz. carton	25.00	27.00	29.00
2-1/2-lb. carton	21.00	23.00	25.00
Weighted average	23.60	25.60	27.60
Southern peas:			
10-oz. carton	23.00	25.00	27.00
20-oz. poly bag	22.00	24.00	26.00
2-1/2-lb. carton	20.00	22.00	24.00
Weighted average	22.00	24.00	26.00
Squash:			
10-oz. carton	17.00	18.00	19.00
2-1/2-lb. carton	15.00	16.00	17.00
Weighted average	16.30	17.30	18.30

1/ Average gross income per pound of finished product weighted by quantity sold in each container type.

The second factor affecting costs in this analysis was length of processing season or processing hours per year. Using green beans again as an example, the effect of increasing season length can be observed in appendix tables 1, 2, and 3. Looking at the 22,500-pound-per-hour plant, total net revenue increased from $320,034 to $804,819 when prices were held constant at their highest level for both finished and raw product while season length was increased from 500 to 900 hours.

PROFITABILITY OF INVESTMENT

Before constructing a new freezing plant or investing in an additional processing line, a thorough evaluation of the expected returns to the initial investment is necessary. A significant factor in this decision is the number of years required to repay the investment plus the desired rate of return. In this analysis the planning horizon was set at 10 years with an interest rate of 10 percent.

A modified capitalization method was used to determine the profitability of investment in a single-product freezing plant with expected costs and returns as computed in this analysis. This required estimation of the present value of expected net returns from the plant over the 10-year planning horizon. Basically, it involved five steps:

1. Estimating annual net revenue.

2. Discounting annual net revenue at the market rate of interest for long-term loans.

3. Discounting the salvage value for buildings and equipment at the end of 10 years.

4. Computing the capital value in each time period by summing discounted net revenues over the remaining time periods of the planning horizon and adding to discounted salvage value.

5. Comparing capital value with initial investment.

Net revenue was defined as the total revenue derived from sale of the finished product minus total operating costs. It is the return on the investment. For this analysis, annual net revenue has been assumed constant throughout the 10 years. Determination of the present value of future net returns was accomplished by discounting the expected net revenue at 10 percent for each year.

Salvage value was calculated at the end of 10 years to be 40 percent of the initial investment in processing buildings, 50 percent of freezer storage, and 20 percent of processing equipment. Present value of this salvage value was determined by discounting at 10 percent interest rate for each year.

Capital values for the first year are listed in tables 15-20 for each single-product freezing plant model as specified in this analysis. Only the positive capital values have been listed. If the capital value is greater than

:n beans: Capital value for first year of 10-year planning horizon, by
:y, season length, finished product price, and raw product price

Season length	...ts per pound of finished product: ...on: $125 per ton of raw product	20.25 cents per pound of finished product: $100 per ton of raw product	20.25 cents per pound of finished product: $125 per ton of raw product	22.00 cents per pound of finished product: $100 per ton of raw product	22.00 cents per pound of finished product: $125 per ton of raw product
	Dollars				
1,500 pounds:					
500 hours	1/	1/	1/	1/	1/
700 hours	1/	1/	1/	1/	1/
900 hours	1/	1/	1/	1/	1/
6,000 pounds:					
500 hours	1/	1/	1/	318,615	1/
700 hours	1/	1/	349,357	722,288	354,082
900 hours	201,505	1/	680,989	1,167,841	687,325
12,000 pounds:					
500 hours	329,045	1/	861,803	1,394,561	867,561
700 hours	759,824	1/	1,505,681	2/2,251,539	1,513,761
900 hours	1,406,875	458,290	2/2,365,838	2/3,324,801	2/2,376,216
18,000 pounds:					
500 hours	746,355	1/	1,545,486	2,344,623	1,554,175
700 hours	1,693,495	586,871	2/2,812,283	2/3,931,072	2/2,824,449
900 hours	2,392,598	969,788	2/3,831,039	2/5,269,481	2/3,846,671
22,500 pounds:					
500 hours	1,337,997	1/	2,336,924	2/3,335,839	2,335,431
700 hours	2,236,388	852,922	2/3,634,878	2/5,033,367	2/3,649,901
900 hours	2/3,520,555	1,741,938	2/5,318,607	2/7,113,617	2/5,335,001

1/ Net returns to investment are negative. See appendix tables 1, 2, and 3.

2/ Capital value greater than initial investment in building and equipment. See table 2 for amount of initial investment.

Table 16.--Model plants freezing lima beans: Capital value for first year of a 10-year planning horizon, by hourly finished product capacity, season length, finished product price, and raw product price

Hourly finished product capacity and season length	20.25 cents per pound of finished product		22.25 cents per pound of finished product		24.25 cents per pound of finished product	
	$175 per ton of raw product	$200 per ton of raw product	$175 per ton of raw product	$200 per ton of raw product	$175 per ton of raw product	$200 per ton of raw product
	Dollars					
1,500 pounds:						
300 hours	1/	1/	1/	1/	1/	1/
500 hours	1/	1/	1/	1/	1/	1/
700 hours	1/	1/	1/	1/	1/	1/
6,000 pounds:						
300 hours	1/	1/	1/	1/	1/	1/
500 hours	1/	1/	1/	1/	182,587	1/
700 hours	1/	1/	201,601	1/	627,806	297,757
12,000 pounds:						
300 hours	1/	1/	1/	1/	1/	1/
500 hours	1/	1/	310,737	1/	919,601	448,105
700 hours	1/	1/	873,826	213,729	2/1,726,237	1,066,139
18,000 pounds:						
300 hours	1/	1/	1/	1/	493,695	1/
500 hours	1/	1/	742,695	1/	1,655,991	948,746
700 hours	444,348	1/	1,722,963	732,817	2/3,001,579	2,011,432
22,500 pounds:						
300 hours	1/	1/	1/	1/	884,871	354,411
500 hours	1/	1/	1,267,858	383,760	2/2,409,481	1,525,383
700 hours	914,196	1/	2/2,512,463	1,271,262	2/4,110,731	2/2,872,989

1/ Net returns to investment were negative. See appendix tables 4, 5, and 6.
2/ Capital value greater than initial investment in building and equipment. See table 2 for amount of initial investment.

Table 17.--Model plants freezing leafy greens: Capital value for first year of a 10-year planning horizon, by hourly finished product capacity, season length, finished product price, and raw product price

Hourly finished product capacity and season length	13.60 cents per pound of finished product		14.60 cents per pound of finished product		15.60 cents per pound of finished product	
	$30 per ton of raw product	$40 per ton of raw product	$30 per ton of raw product	$40 per ton of raw product	$30 per ton of raw product	$40 per ton of raw product
	Dollars					
1,500 pounds:						
300 hours	1/	1/	1/	1/	1/	1/
500 hours	1/	1/	1/	1/	1/	1/
700 hours	1/	1/	1/	1/	1/	1/
6,000 pounds:						
300 hours	1/	1/	1/	1/	1/	1/
500 hours	1/	1/	1/	1/	1/	1/
700 hours	1/	1/	245,287	94,174	458,393	307,280
12,000 pounds:						
300 hours	1/	1/	1/	1/	1/	1/
500 hours	185,233	1/	489,665	273,794	794,097	578,226
700 hours	773,358	471,137	1,199,563	897,343	1,625,768	1,323,548
18,000 pounds:						
300 hours	1/	1/	1/	1/	314,213	1/
500 hours	412,138	1/	868,789	544,983	1,325,434	1,001,628
700 hours	1,296,238	842,904	1,935,548	1,482,215	2,574,853	2,121,520
22,500 pounds:						
300 hours	1/	1/	309,187	1/	651,679	408,821
500 hours	924,762	519,989	1,495,530	1,090,758	2,066,299	1,661,526
700 hours	2,070,632	1,503,950	2,869,763	2,303,081	2/3,668,906	2/3,102,224

1/ Net returns to investment were negative. See appendix tables 7, 8, and 9.

2/ Capital value greater than initial investment in building and equipment. See table 2 for amount of initial investment.

Table 18.--Model plants freezing okra: Capital value for first year of a 10-year planning horizon, by hourly finished product capacity, season length, finished product price, and raw product price

Hourly finished product capacity and season length	23.60 cents per pound of finished product		25.60 cents per pound of finished product		27.60 cents per pound of finished product	
	$60 per ton of raw product	$80 per ton of raw product	$60 per ton of raw product	$80 per ton of raw product	$60 per ton of raw product	$80 per ton of raw product
	Dollars					
1,500 pounds:						
100 hours	1/	1/	1/	1/	1/	1/
300 hours	1/	1/	1/	1/	1/	1/
500 hours	1/	1/	70,557	1/	146,664	92,715
6,000 pounds:						
100 hours	1/	1/	1/	1/	1/	1/
300 hours	1/	1/	283,588	154,061	466,247	336,720
500 hours	729,550	513,673	1,033,982	818,105	2/1,341,235	2/1,125,358
12,000 pounds:						
100 hours	1/	1/	1/	1/	1/	1/
300 hours	761,720	502,671	1,127,038	867,990	1,492,357	1,233,309
500 hours	2/2,001,922	1,570,175	2/2,610,787	2/2,179,039	2/3,219,651	2/2,787,904

1/ Net returns to investment were negative. See appendix tables 10, 11, and 12.
2/ Capital value greater than initial investment in building and equipment. See table 2 for amount of initial investment.

Table 19.--Model plants freezing southern peas: Capital value for first year of a 10-year planning horizon, by hourly finished product capacity, season length, finished product price, and raw product price

Hourly finished product capacity and season length	22.00 cents per pound of finished product		24.00 cents per pound of finished product		26.00 cents per pound of finished product	
	$175 per ton of raw product	$200 per ton of raw product	$175 per ton of raw product	$200 per ton of raw product	$175 per ton of raw product	$200 per ton of raw product
	Dollars					
1,500 pounds:						
300 hours	1/	1/	1/	1/	1/	1/
500 hours	1/	1/	1/	1/	1/	1/
700 hours	1/	1/	1/	1/	56,545	1/
6,000 pounds:						
300 hours	1/	1/	1/	1/	1/	1/
500 hours	1/	1/	152,578	1/	457,010	221,262
700 hours	121,662	1/	547,867	217,818	974,072	644,023
12,000 pounds:						
300 hours	1/	1/	1/	1/	462,602	179,700
500 hours	205,355	1/	875,665	404,174	1,484,529	1,013,039
700 hours	878,181	218,089	2/1,730,591	1,070,499	2/2,583,001	2/1,922,910
18,000 pounds:						
300 hours	1/	1/	464,225	1/	1,012,203	587,853
500 hours	676,874	1/	1,590,170	882,925	2/2,503,467	1,796,222
700 hours	1,629,327	639,180	2/2,907,942	1,917,795	2/4,195,557	2/3,196,411
22,500 pounds:						
300 hours	1/	1/	833,937	303,477	1,518,908	988,448
500 hours	1,169,981	285,883	2,311,603	1,427,505	2/3,453,226	2/2,569,128
700 hours	2,375,280	1,137,544	2/3,973,547	2/2,735,812	2/5,571,815	2/4,334,079

1/ Net returns to investment were negative. See appendix tables 13, 14, and 15.

2/ Capital value greater than initial investment in building and equipment. See table 2 for amount of initial investment.

Table 20.--Model plants freezing squash: Capital value for first year of 10-year planning horizon, by hourly finished product capacity, season length, finished product price, and raw product price

Hourly finished product capacity and season length	16.30 cents per pound of finished product		17.30 cents per pound of finished product		18.30 cents per pound of finished product	
	$80 per ton of raw product	$100 per ton of raw product	$80 per ton of raw product	$100 per ton of raw product	$80 per ton of raw product	$100 per ton of raw product
	Dollars					
1,500 pounds:						
100 hours	1/	1/	1/	1/	1/	1/
300 hours	1/	1/	1/	1/	1/	1/
500 hours	1/	1/	1/	1/	1/	1/
6,000 pounds:						
100 hours	1/	1/	1/	1/	1/	1/
300 hours	1/	1/	1/	1/	1/	1/
500 hours	1/	1/	1/	1/	1/	1/
12,000 pounds:						
100 hours	1/	1/	1/	1/	1/	1/
300 hours	1/	1/	1/	1/	1/	1/
500 hours	1/	1/	341,369	1/	645,807	224,217
18,000 pounds:						
100 hours	1/	1/	1/	1/	1/	1/
300 hours	1/	1/	1/	1/	1/	1/
500 hours	1/	1/	708,568	1/	1,183,647	532,858
22,500 pounds:						
100 hours	1/	1/	1/	1/	1/	1/
300 hours	1/	1/	1/	1/	523,200	1/
500 hours	705,755	1/	1,276,572	486,075	1,847,378	1,056,880

1/ Net returns to investment were negative. See appendix tables 16, 17, and 18.

Note: Capital value was not greater than initial investment in building and equipment for any combination. See table 2.

the initial investment in year 1, then the project is considered economically feasible or profitable. Profitable, as used in this study, means that the discounted net return over the planning horizon, plus discounted salvage value, is greater than the initial investment or purchase price of an existing plant. Thus, the capital values for years 2 through 10 could easily be derived to determine the feasibility of purchasing an existing plant. The analysis would be the same as for a new plant, but the number of years left to accumulate the net returns would be shortened. These values have not been included.

Green bean model plants of 1,500 and 6,000 pounds per hour capacity were not profitable at any combination of prices (table 15). Investments became profitable when plant size reached 12,000 pounds per hour--operating 700 hours per season with raw product at its lower price ($100 per ton) and finished product at its higher price. Increasing season length to 900 hours enabled this plant to be profitable at a lower finished product price and also at the higher raw product price of $125 per ton.

The largest green bean model plant, 22,500 pounds per hour, was profitable at all but the highest price for raw product combined with the lowest price for finished product when operated 900 hours per season. This plant was also profitable at the highest raw product price and lowest finished product price when operated only 500 hours per year.

The model freezing plants for lima beans became profitable when plant size reached 12,000 pounds per hour and season length reached 700 hours, with the highest finished product price and the lower raw product price (table 16). This was also the only combination profitable for the 18,000-pound-per-hour plant. At the lowest finished product price level and higher raw product price, net returns to investment were negative for all plant sizes and season lengths. None of the model plants were profitable when operated only 300 hours, while only the largest plant was profitable at the most favorable combination of prices when the length of season was 500 hours.

Leafy greens plants were profitable for only the largest model plant size in this analysis and with the 700-hour season. At this combination the capital value was greater than initial investment for both high and low raw product prices when finished product price was at its highest level (table 17).

Okra model plants were limited to three sizes: 1,500, 6,000, and 12,000 pounds per hour (table 18). This was due to the exceptionally large amount of labor required during the initial processing stages. Okra holds another distinction in this analysis--it is the only vegetable out of the six to be economically profitable at 6,000 pounds per hour. For 500-hour seasons, the 6,000-pounds-per-hour plant was profitable at the highest finished product price and both raw product prices. At 12,000 pounds per hour and the 500-hour season, all combinations of prices were profitable except one. None of the model plants ofitable investments when the operating season was 300 hours or less in

combinations of prices, and even occasionally at the middle season length of 500 hours, they were unprofitable at the lowest finished product prices in all situations.

Squash was the only vegetable of the six considered in this analysis that was not profitable at any combination of plant size and season length (table 20). Capital values were considerably below initial investments, and a large increase in finished product price would be necessary to increase net returns sufficiently to make investment in a single-product plant profitable.

Appendix Table 1.--Green beans: Annual net revenue for freezing plants with selected hourly processing capacities and 500 hour seasons a/

Hourly finished product capacity	Item	Raw product cost					
		$100/ton			$125/ton		
		Finished product price (cents/pound)					
		18.50	20.25	22.00	18.50	20.25	22.00
(pounds)		dollars					
1,500	Total revenue	124,875	136,688	148,500	124,875	136,688	148,500
	Operating cost:						
	Annual	64,488	65,463	66,436	65,282	66,257	67,230
	Hourly	107,541	107,541	107,541	117,466	117,466	117,466
	Total b/	172,029	173,004	173,977	182,748	183,723	184,696
	Total net revenue c/	-47,154	-36,316	-25,477	-57,873	-47,035	-36,196
6,000	Total revenue	499,500	546,750	594,000	499,500	546,750	594,000
	Operating cost:						
	Annual	211,136	215,034	218,932	214,313	218,211	222,109
	Hourly	342,995	342,995	342,995	382,708	382,708	382,708
	Total b/	554,131	558,029	561,927	597,021	600,919	604,817
	Total net revenue c/	-54,631	-11,279	32,073	-97,521	-54,169	-10,817
12,000	Total revenue	999,000	1,093,500	1,188,000	999,000	1,093,500	1,188,000
	Operating cost:						
	Annual	347,301	355,097	362,893	353,655	361,451	369,247
	Hourly	628,419	628,419	628,419	707,832	707,832	707,832
	Total b/	975,720	983,516	991,312	1,061,487	1,069,283	1,077,079
	Total net revenue c/	23,280	109,984	196,688	-62,487	24,217	110,921
18,000	Total revenue	1,498,500	1,640,250	1,782,000	1,498,500	1,640,250	1,782,000
	Operating cost:						
	Annual	477,295	488,990	500,684	486,824	498,519	510,213
	Hourly	943,904	943,904	943,904	1,063,017	1,063,017	1,063,017
	Total b/	1,421,199	1,432,894	1,444,588	1,549,841	1,561,536	1,573,230
	Total net revenue c/	77,301	207,356	337,412	-51,341	78,714	208,770
22,500	Total revenue	1,873,125	2,050,313	2,227,500	1,873,125	2,050,313	2,227,500
	Operating cost:						
	Annual	562,990	577,607	592,225	576,902	591,519	606,137
	Hourly	1,152,429	1,152,429	1,152,429	1,301,329	1,301,329	1,301,329
	Total b/	1,715,419	1,730,036	1,744,654	1,878,231	1,892,848	1,907,466
	Total net revenue c/	157,706	320,277	482,846	-5,106	157,465	320,034

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 2.--Green beans: Annual net revenue for freezing plants with selected hourly processing capacities and 700 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$100/ton			$125/ton		
		Finished product price (cents/pound)					
		18.50	20.25	22.00	18.50	20.25	22.00
		dollars					
1,500	Total revenue	174,825	191,362	207,900	174,825	191,362	207,900
	Operating cost:						
	Annual	71,591	72,956	74,319	72,703	74,068	75,431
	Hourly	148,221	148,221	148,221	162,116	162,116	162,116
	Total b/	219,812	221,177	222,540	234,819	236,184	237,547
	Total net revenue c/	-44,987	-29,815	-14,640	-59,994	-44,822	-29,647
6,000	Total revenue	699,300	765,450	831,600	699,300	765,450	831,600
	Operating cost:						
	Annual	239,549	245,007	250,464	243,988	249,446	254,903
	Hourly	483,810	483,810	483,810	539,295	539,295	539,295
	Total b/	723,359	728,817	734,274	783,283	788,741	794,198
	Total net revenue c/	-24,059	36,633	97,326	-83,983	-23,291	37,402
12,000	Total revenue	1,398,600	1,530,900	1,663,200	1,398,600	1,530,900	1,663,200
	Operating cost:						
	Annual	414,838	425,753	436,668	423,732	434,647	445,562
	Hourly	899,521	899,521	899,521	1,010,697	1,010,697	1,010,697
	Total b/	1,314,359	1,325,274	1,336,189	1,434,429	1,445,344	1,456,259
	Total net revenue c/	84,241	205,626	327,011	-35,829	85,556	206,941
18,000	Total revenue	2,097,900	2,296,350	2,494,800	2,097,900	2,296,350	2,494,800
	Operating cost:						
	Annual	557,747	574,119	590,491	571,087	587,459	603,831
	Hourly	1,309,746	1,309,746	1,309,746	1,476,504	1,476,504	1,476,504
	Total b/	1,867,493	1,883,865	1,900,237	2,047,591	2,063,963	2,080,335
	Total net revenue c/	230,407	412,485	594,563	50,309	232,387	414,465
22,500	Total revenue	2,622,375	2,870,438	3,118,500	2,622,375	2,870,438	3,118,500
	Operating cost:						
	Annual	673,800	694,265	714,729	690,493	710,958	731,422
	Hourly	1,647,778	1,647,778	1,647,778	1,856,238	1,856,238	1,856,238
	Total b/	2,321,578	2,342,043	2,362,507	2,546,731	2,567,196	2,587,660
	Total net revenue c/	300,797	528,395	755,993	75,644	303,242	530,840

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 3.--Green beans: Annual net revenue for freezing plants with selected hourly processing capacities and 900 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$100/ton			$125/ton		
		Finished product price (cents/pound)					
		18.50	20.25	22.00	18.50	20.25	22.00
		dollars					
1,500	Total revenue	224,775	246,038	267,300	224,775	246,038	267,300
	Operating cost:						
	Annual	78,782	80,536	82,289	80,212	81,966	83,719
	Hourly	187,844	187,844	187,844	205,619	205,619	205,619
	Total b/	266,626	268,380	270,133	285,831	287,585	289,338
	Total net revenue c/	-41,851	-22,342	-2,833	-61,056	-41,547	-22,038
6,000	Total revenue	899,100	984,150	1,069,200	899,100	984,150	1,069,200
	Operating cost:						
	Annual	270,632	277,648	283,465	276,351	283,367	289,184
	Hourly	619,220	619,220	619,220	691,703	691,703	691,703
	Total b/	889,852	896,868	902,685	968,054	975,070	980,887
	Total net revenue c/	9,248	87,282	166,515	-68,954	9,080	88,313
12,000	Total revenue	1,798,200	1,968,300	2,138,400	1,798,200	1,968,300	2,138,400
	Operating cost:						
	Annual	466,591	480,624	494,657	478,026	492,059	506,092
	Hourly	1,142,151	1,142,151	1,142,151	1,285,094	1,285,094	1,285,094
	Total b/	1,608,742	1,622,775	1,636,808	1,763,120	1,777,153	1,791,186
	Total net revenue c/	189,458	345,525	501,592	35,080	191,147	347,214
18,000	Total revenue	2,697,300	2,952,450	3,207,600	2,697,300	2,952,450	3,207,600
	Operating cost:						
	Annual	656,877	677,927	698,977	674,030	695,080	716,130
	Hourly	1,710,063	1,710,063	1,710,063	1,924,466	1,924,466	1,924,466
	Total b/	2,366,940	2,387,990	2,409,040	2,598,496	2,619,546	2,640,596
	Total net revenue c/	330,360	564,460	798,560	98,804	332,904	567,004
22,500	Total revenue	3,371,625	3,690,562	4,008,960	3,371,625	3,690,562	4,008,960
	Operating cost:						
	Annual	770,189	796,501	822,769	791,631	817,943	844,211
	Hourly	2,091,910	2,091,910	2,091,910	2,359,930	2,359,930	2,359,930
	Total b/	2,862,099	2,888,411	2,914,679	3,151,561	3,177,873	3,204,141
	Total net revenue c/	509,526	802,151	1,094,281	220,064	512,689	804,819

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 4.--Lima beans: Annual net revenue for freezing plants with selected hourly processing capacities and 300 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$175/ton			$200/ton		
		Finished product price (cents/pound)					
		20.25	22.25	24.25	20.25	22.25	24.25
		dollars					
1,500	Total revenue	82,013	90,113	98,213	82,013	90,113	98,213
	Operating cost:						
	Annual	58,321	58,989	59,657	58,747	59,415	60,083
	Hourly	88,319	88,319	88,319	93,651	93,651	93,651
	Total b/	146,640	147,308	147,976	152,398	153,066	153,734
	Total net revenue c/	-64,627	-57,195	-49,763	-70,385	-62,953	-55,521
6,000	Total revenue	328,050	360,450	392,850	328,050	360,450	392,850
	Operating cost:						
	Annual	182,676	185,349	188,022	184,381	187,054	189,727
	Hourly	258,223	258,223	258,223	279,538	279,538	279,538
	Total b/	440,899	443,572	446,245	463,919	466,592	469,265
	Total net revenue c/	-112,849	-83,122	-53,395	-135,869	-106,142	-76,415
12,000	Total revenue	656,100	720,900	785,700	656,100	720,900	785,700
	Operating cost:						
	Annual	292,064	297,410	302,761	295,474	300,820	306,171
	Hourly	468,159	468,159	468,159	528,789	528,789	528,789
	Total b/	760,223	765,569	770,920	824,263	829,609	834,960
	Total net revenue c/	-104,123	-44,669	14,780	-168,163	-108,709	-49,260
18,000	Total revenue	984,150	1,081,350	1,178,550	984,150	1,081,350	1,178,550
	Operating cost:						
	Annual	388,662	396,681	404,700	393,778	401,797	409,816
	Hourly	722,580	722,580	722,580	786,525	786,525	786,525
	Total b/	1,111,242	1,119,261	1,127,280	1,180,303	1,188,322	1,196,341
	Total net revenue c/	-127,092	-37,911	51,270	-196,153	-106,972	-17,791
22,500	Total revenue	1,230,188	1,351,688	1,473,188	1,230,188	1,351,688	1,473,188
	Operating cost:						
	Annual	450,038	460,062	470,086	456,433	466,457	476,481
	Hourly	892,341	892,341	892,341	972,276	972,276	972,276
	Total b/	1,342,379	1,352,403	1,362,427	1,428,709	1,438,733	1,448,757
	Total net revenue c/	-112,191	-715	110,761	-198,521	-87,045	24,431

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 5.--Lima beans: Annual net revenue for freezing plants with selected hourly processing capacities and 500 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$175/ton			$200/ton		
		Finished product price (cents/pound)					
		20.25	22.25	24.25	20.25	22.25	24.25
		dollars					
1,500	Total revenue	136,688	150,188	163,688	136,688	150,188	163,688
	Operating cost:						
	Annual	65,386	66,499	67,613	66,098	67,211	68,325
	Hourly	120,057	120,057	120,057	128,944	128,944	128,944
	Total b/	185,443	186,556	187,670	195,042	196,155	197,269
	Total net revenue c/	-48,755	-36,368	-23,982	-58,354	-45,967	-33,581
6,000	Total revenue	546,750	600,750	654,750	546,750	600,750	654,750
	Operating cost:						
	Annual	213,613	218,128	222,583	216,455	220,970	225,425
	Hourly	419,362	419,362	419,362	454,887	454,887	454,887
	Total b/	632,975	637,490	641,945	671,342	675,857	680,312
	Total net revenue c/	-86,225	-36,740	12,805	-124,592	-75,107	-25,562
12,000	Total revenue	1,093,500	1,201,500	1,309,500	1,093,500	1,201,500	1,309,500
	Operating cost:						
	Annual	359,639	368,549	377,459	365,323	374,233	383,143
	Hourly	808,691	808,691	808,691	879,741	879,741	879,741
	Total b/	1,168,330	1,177,240	1,186,150	1,245,064	1,253,974	1,262,884
	Total net revenue c/	-74,830	24,260	123,350	-151,564	-52,474	46,616
18,000	Total revenue	1,640,250	1,802,250	1,964,250	1,640,250	1,802,250	1,964,250
	Operating cost:						
	Annual	494,632	507,997	521,362	503,158	516,523	529,888
	Hourly	1,211,244	1,211,244	1,211,244	1,317,819	1,317,819	1,317,819
	Total b/	1,705,876	1,719,241	1,732,606	1,820,977	1,834,342	1,847,707
	Total net revenue c/	-65,626	83,009	231,644	-180,727	-32,092	116,543
22,500	Total revenue	2,050,313	2,252,813	2,455,313	2,050,313	2,252,813	2,455,313
	Operating cost:						
	Annual	577,666	594,372	611,078	588,324	605,030	621,736
	Hourly	1,493,816	1,493,816	1,493,816	1,627,041	1,627,041	1,627,041
	Total b/	2,071,482	2,088,188	2,104,894	2,215,365	2,232,071	2,248,777
	Total net revenue c/	-21,169	164,625	350,419	-165,052	20,742	206,536

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 6.--Lima beans: Annual net revenue for freezing plants with selected hourly processing capacities and 700 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$175/ton			$200/ton		
		Finished product price (cents/pound)					
		20.25	22.25	24.25	20.25	22.25	24.25
		dollars					
1,500	Total revenue	191,363	210,263	229,163	191,363	210,263	229,163
	Operating cost:						
	Annual	73,626	75,186	76,745	74,621	76,181	77,740
	Hourly	166,556	166,556	166,556	178,998	178,998	178,998
	Total b/	240,182	241,742	243,301	253,619	255,179	256,738
	Total net revenue c/	-48,819	-31,479	-14,138	-62,256	-44,916	-27,575
6,000	Total revenue	765,450	841,050	916,650	765,450	841,050	916,650
	Operating cost:						
	Annual	244,191	250,428	256,665	248,170	254,407	260,644
	Hourly	574,738	574,738	574,738	624,473	624,473	624,473
	Total b/	818,929	825,166	831,403	872,643	878,880	885,117
	Total net revenue c/	-53,479	15,884	85,247	-107,193	-37,830	31,533
12,000	Total revenue	1,530,900	1,682,100	1,833,300	1,530,900	1,682,100	1,833,300
	Operating cost:						
	Annual	421,912	434,386	446,860	429,870	442,344	454,818
	Hourly	1,131,932	1,131,932	1,131,932	1,231,402	1,231,402	1,231,402
	Total b/	1,553,844	1,566,318	1,578,792	1,661,272	1,673,746	1,686,220
	Total net revenue c/	-22,944	115,782	254,508	-130,372	8,354	147,080
18,000	Total revenue	2,296,350	2,523,150	2,749,950	2,296,350	2,523,150	2,749,950
	Operating cost:						
	Annual	586,407	605,118	623,829	598,344	617,055	635,766
	Hourly	1,675,666	1,675,666	1,675,666	1,824,871	1,824,871	1,824,871
	Total b/	2,262,073	2,280,784	2,299,495	2,423,215	2,441,926	2,460,637
	Total net revenue c/	34,277	242,366	450,455	-126,865	81,224	289,313
22,500	Total revenue	2,870,438	3,153,938	3,437,438	2,870,438	3,153,938	3,437,438
	Operating cost:						
	Annual	692,027	715,416	738,805	706,949	730,338	753,727
	Hourly	2,071,343	2,071,343	2,071,343	2,257,858	2,257,858	2,257,858
	Total b/	2,763,370	2,786,759	2,810,148	2,964,807	2,988,196	3,011,585
	Total net revenue c/	107,068	367,179	627,290	-94,369	165,742	425,853

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 7 .--Leafy greens: Annual net revenue for freezing plants with selected hourly processing capacities and 300 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$30/ton			$40/ton		
		Finished product price (cents/pound)					
		13.6	14.6	15.6	13.6	14.6	15.6
		dollars					
1,500	Total revenue	55,081	59,130	63,181	55,081	59,130	63,181
	Operating cost:						
	Annual	50,138	50,472	50,806	50,333	50,667	51,001
	Hourly	53,107	53,107	53,107	55,546	55,546	55,546
	Total b/	103,245	103,579	103,913	105,879	106,213	106,547
	Total net revenue c/	-48,164	-44,449	-40,732	-50,798	-47,083	-43,366
6,000	Total revenue	220,080	236,520	252,720	220,080	236,520	252,720
	Operating cost:						
	Annual	169,252	170,607	171,944	170,033	171,388	172,725
	Hourly	144,962	144,962	144,962	154,721	154,721	154,721
	Total b/	314,214	315,569	316,906	324,754	326,109	327,446
	Total net revenue c/	-94,134	-79,049	-64,186	-104,674	-89,589	-74,726
12,000	Total revenue	440,640	473,040	505,440	440,640	473,040	505,440
	Operating cost:						
	Annual	261,824	264,497	267,170	263,385	266,058	268,731
	Hourly	257,271	257,271	257,271	267,789	267,789	267,789
	Total b/	519,095	521,768	524,441	531,174	533,847	536,520
	Total net revenue c/	-78,455	-48,728	-19,001	-90,534	-60,807	-31,080
18,000	Total revenue	660,960	709,560	758,160	660,960	709,560	758,160
	Operating cost:						
	Annual	359,766	363,776	367,785	362,108	366,118	370,127
	Hourly	386,114	386,114	386,114	415,391	415,391	415,391
	Total b/	745,880	749,890	753,899	777,499	781,509	785,518
	Total net revenue c/	-84,920	-40,330	4,261	-116,539	-71,949	-27,358
22,500	Total revenue	826,201	886,950	947,701	826,201	886,950	947,701
	Operating cost:						
	Annual	406,906	411,917	416,929	409,833	414,844	419,856
	Hourly	467,346	467,346	467,346	503,943	503,943	503,943
	Total b/	874,252	879,263	884,275	913,776	918,787	923,799
	Total net revenue c/	-48,051	7,687	63,426	-87,575	-31,837	23,902

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 8.--Leafy greens: Annual net revenue for freezing plants with selected hourly processing capacities and 500 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$30/ton			$40/ton		
		Finished product price (cents/pound)					
		13.6	14.6	15.6	13.6	14.6	15.6
		dollars					
1,500	Total revenue	91,801	98,550	105,301	91,801	98,550	105,301
	Operating cost:						
	Annual	55,301	55,857	56,414	55,626	56,182	56,739
	Hourly	79,577	79,577	79,577	83,642	83,642	83,642
	Total b/	134,878	135,434	135,991	139,268	139,824	140,381
	Total net revenue c/	-43,077	-36,884	-30,690	-47,467	-41,274	-35,080
6,000	Total revenue	367,200	394,200	421,200	367,200	394,200	421,200
	Operating cost:						
	Annual	188,307	190,535	192,762	189,609	191,837	194,064
	Hourly	230,630	230,630	230,630	246,895	246,895	246,895
	Total b/	418,937	421,165	423,392	436,504	438,732	440,959
	Total net revenue c/	-51,737	-26,965	-2,192	-69,304	-44,532	-19,759
12,000	Total revenue	734,400	788,400	842,400	734,400	788,400	842,400
	Operating cost:						
	Annual	304,344	308,799	313,254	306,946	311,401	315,856
	Hourly	427,976	427,976	427,976	460,506	460,506	460,506
	Total b/	732,320	736,775	741,230	767,452	771,907	776,362
	Total net revenue c/	2,080	51,625	101,170	-33,052	16,493	66,038
18,000	Total revenue	1,101,600	1,182,600	1,263,600	1,101,600	1,182,600	1,263,600
	Operating cost:						
	Annual	428,845	435,527	442,210	432,748	439,430	446,113
	Hourly	652,510	652,510	652,510	701,305	701,305	701,305
	Total b/	1,081,355	1,088,037	1,094,720	1,134,053	1,140,735	1,147,418
	Total net revenue c/	20,245	94,563	168,880	-32,453	41,865	116,182
22,500	Total revenue	1,376,918	1,478,160	1,579,403	1,376,918	1,478,160	1,579,403
	Operating cost:						
	Annual	489,445	497,797	506,150	494,325	502,677	511,030
	Hourly	787,928	787,928	787,928	848,923	848,923	848,923
	Total b/	1,277,373	1,285,725	1,294,078	1,343,248	1,351,600	1,359,953
	Total net revenue c/	99,545	192,435	285,325	33,670	126,560	219,450

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 9 .--Leafy greens: Annual net revenue for freezing plants with selected hourly processing capacities and 700 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$30/ton			$40/ton		
		Finished product price (cents/pound)					
		13.6	14.6	15.6	13.6	14.6	15.6
		dollars					
1,500	Total revenue	128,521	137,970	147,421	128,521	137,970	147,421
	Operating cost:						
	Annual	60,457	61,237	62,016	60,912	61,692	62,471
	Hourly	106,050	106,050	106,050	111,741	111,741	111,741
	Total b/	166,507	167,287	168,066	172,653	173,433	174,212
	Total net revenue c/	-37,986	-29,317	-20,645	-44,132	-35,463	-26,791
6,000	Total revenue	514,080	551,880	589,680	514,080	551,880	589,680
	Operating cost:						
	Annual	207,323	210,442	213,560	209,145	212,264	215,382
	Hourly	316,311	316,311	316,311	339,082	339,082	339,082
	Total b/	523,634	526,753	529,871	548,227	551,346	554,464
	Total net revenue c/	-9,554	25,127	59,809	-34,147	534	35,216
12,000	Total revenue	1,028,160	1,103,760	1,179,360	1,028,160	1,103,760	1,179,360
	Operating cost:						
	Annual	341,537	347,774	354,011	345,180	351,417	357,654
	Hourly	588,860	588,860	588,860	634,402	634,402	634,402
	Total b/	930,397	936,634	942,871	979,582	985,819	992,056
	Total net revenue c/	97,763	167,126	236,489	48,578	117,941	187,304
18,000	Total revenue	1,542,240	1,655,640	1,769,040	1,542,240	1,655,640	1,769,040
	Operating cost:						
	Annual	484,613	493,968	503,324	490,078	499,433	508,789
	Hourly	893,546	893,546	893,546	961,859	961,859	961,859
	Total b/	1,378,159	1,387,514	1,396,870	1,451,937	1,461,292	1,470,648
	Total net revenue c/	164,081	268,126	372,170	90,303	194,348	298,392
22,500	Total revenue	1,927,801	2,069,550	2,211,301	1,927,801	2,069,550	2,211,301
	Operating cost:						
	Annual	558,678	570,372	582,066	565,510	577,204	588,898
	Hourly	1,083,152	1,083,152	1,083,152	1,168,545	1,168,545	1,168,545
	Total b/	1,641,830	1,653,524	1,665,218	1,734,055	1,745,749	1,757,443
	Total net revenue c/	285,971	416,026	546,083	193,746	323,801	453,858

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 10.--Okra: Annual net revenue for freezing plants with selected hourly processing capacities and 100 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$60/ton			$80/ton		
		Finished product price (cents/pound)					
		23.6	25.6	27.6	23.6	25.6	27.6
		dollars					
1,500	Total revenue	31,861	34,561	37,261	31,861	34,561	37,261
	Operating cost:						
	Annual	52,994	53,216	53,439	53,124	53,346	53,569
	Hourly	28,645	28,645	28,645	30,271	30,271	30,271
	Total b/	81,639	81,861	82,084	83,395	83,617	83,840
	Total net revenue c/	-49,778	-47,300	-44,823	-51,534	-49,056	-46,579
6,000	Total revenue	127,440	138,240	149,040	127,440	138,240	149,040
	Operating cost:						
	Annual	147,619	148,510	149,401	148,140	149,031	149,922
	Hourly	71,754	71,754	71,754	78,260	78,260	78,260
	Total b/	219,373	220,264	221,155	226,400	227,291	228,182
	Total net revenue c/	-91,933	-82,024	-72,115	-98,960	-89,051	-79,142
12,000	Total revenue	254,880	276,480	298,080	254,880	276,480	298,080
	Operating cost:						
	Annual	230,784	232,566	234,348	231,825	233,607	235,389
	Hourly	131,308	131,308	131,308	144,320	144,320	144,320
	Total b/	362,092	363,874	365,656	376,145	377,927	379,709
	Total net revenue c/	-107,212	-87,394	-67,576	-121,265	-101,447	-81,629

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 11.--Okra: Annual net revenue for freezing plants with selected hourly processing capacities and 300 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$60/ton			$80/ton		
		Finished product price (cents/pound)					
		23.6	25.6	27.6	23.6	25.6	27.6
		dollars					
1,500	Total revenue	95,581	103,680	111,781	95,581	103,680	111,781
	Operating cost:						
	Annual	61,130	61,798	62,466	61,520	62,188	62,856
	Hourly	64,364	64,364	64,364	69,242	69,242	69,242
	Total b/	125,494	126,162	126,830	130,762	131,430	132,098
	Total net revenue c/	-29,913	-22,482	-15,049	-35,181	-27,750	-20,317
6,000	Total revenue	382,320	414,720	447,120	382,320	414,720	447,120
	Operating cost:						
	Annual	185,043	187,716	190,389	186,605	189,278	191,951
	Hourly	198,966	198,966	198,966	218,484	218,484	218,484
	Total b/	384,009	386,682	389,355	405,089	407,762	410,435
	Total net revenue c/	-1,689	28,038	57,765	-22,769	6,958	36,685
12,000	Total revenue	764,640	829,440	894,240	764,640	829,440	894,240
	Operating cost:						
	Annual	298,597	303,943	309,289	301,720	307,066	312,412
	Hourly	367,711	367,711	367,711	406,747	406,747	406,747
	Total b/	666,308	671,654	677,000	708,467	713,813	719,159
	Total net revenue c/	98,332	157,786	217,240	56,173	115,627	175,081

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 12.--Okra: Annual net revenue for freezing plants with selected hourly processing capacities and 500 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$60/ton			$80/ton		
		Finished product price (cents/pound)					
		23.6	25.6	27.6	23.6	25.6	27.6
		dollars					
1,500	Total revenue	159,301	172,801	186,301	159,301	172,801	186,301
	Operating cost:						
	Annual	69,344	70,458	71,572	69,994	71,108	72,222
	Hourly	101,144	101,144	101,144	109,274	109,274	109,274
	Total b/	170,488	171,602	172,716	179,268	180,382	181,496
	Total net revenue c/	-11,187	1,199	13,585	-19,967	-7,581	4,805
6,000	Total revenue	637,200	691,200	745,700	637,200	691,200	745,700
	Operating cost:						
	Annual	215,876	220,331	224,827	218,479	222,934	227,430
	Hourly	320,731	320,731	320,731	353,261	353,261	353,261
	Total b/	536,607	541,062	545,558	571,740	576,195	580,691
	Total net revenue c/	100,593	150,138	200,142	65,460	115,005	165,009
12,000	Total revenue	1,274,400	1,382,400	1,490,400	1,274,400	1,382,400	1,490,400
	Operating cost:						
	Annual	365,463	374,373	383,283	370,668	379,578	388,488
	Hourly	612,413	612,413	612,413	677,473	677,473	677,473
	Total b/	977,876	986,786	995,696	1,048,141	1,057,051	1,065,961
	Total net revenue c/	296,524	395,614	494,704	226,259	325,349	424,439

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 13.--Southern peas: Annual net revenue for freezing plants with selected hourly processing capacities and 300 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$175/ton			$200/ton		
		Finished product price (cents/pound)					
		22.0	24.0	26.0	22.0	24.0	26.0
		dollars					
1,500	Total revenue	89,100	97,175	105,300	89,100	97,175	105,300
	Operating cost:						
	Annual	58,575	59,242	59,911	59,002	59,669	60,338
	Hourly	77,492	77,492	77,492	82,824	82,824	82,824
	Total b/	136,067	136,734	137,403	141,826	142,493	143,162
	Total net revenue c/	-46,967	-39,559	-32,103	-52,726	-45,318	-37,862
6,000	Total revenue	356,400	388,800	421,200	356,400	388,800	421,200
	Operating cost:						
	Annual	185,239	187,912	190,585	186,944	189,617	192,290
	Hourly	257,350	257,350	257,350	278,665	278,665	278,665
	Total b/	442,589	445,262	447,935	465,609	468,282	470,955
	Total net revenue c/	-86,189	-56,462	-26,735	-109,209	-79,482	-49,755
12,000	Total revenue	712,800	777,600	842,400	712,800	777,600	842,400
	Operating cost:						
	Annual	296,502	301,848	307,194	299,913	305,259	310,605
	Hourly	482,355	482,355	482,355	524,985	524,985	524,985
	Total b/	778,857	784,203	789,549	824,898	830,244	835,590
	Total net revenue c/	-66,057	-6,603	52,851	-112,098	-52,644	6,810
18,000	Total revenue	1,069,200	1,166,400	1,263,600	1,069,200	1,166,400	1,263,600
	Operating cost:						
	Annual	395,699	403,718	411,737	400,815	408,834	416,853
	Hourly	716,268	716,268	716,268	780,213	780,213	780,213
	Total b/	1,111,967	1,119,986	1,128,005	1,181,028	1,189,047	1,197,066
	Total net revenue c/	-42,767	46,414	135,595	-111,828	-22,647	66,534
22,500	Total revenue	1,336,500	1,458,000	1,579,500	1,336,500	1,458,000	1,579,500
	Operating cost:						
	Annual	458,872	468,896	478,920	465,267	475,291	485,315
	Hourly	886,605	886,605	886,605	966,540	966,540	966,540
	Total b/	1,345,477	1,355,501	1,365,525	1,431,807	1,441,831	1,451,855
	Total net revenue c/	-8,977	102,499	213,975	-95,307	16,169	127,645

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 14.--Southern peas: Annual net revenue for freezing plants with selected hourly processing capacities and 500 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost: $175/ton; Finished product price (cents/pound): 22.0	24.0	26.0	Raw product cost: $200/ton; Finished product price (cents/pound): 22.0	24.0	26.0
		dollars					
1,500	Total revenue	148,500	162,000	175,500	148,500	162,000	175,500
	Operating cost:						
	Annual	67,076	68,190	69,304	67,787	68,901	70,015
	Hourly	122,317	122,317	122,317	131,204	131,204	131,204
	Total b/	189,393	190,507	191,621	198,991	200,105	201,219
	Total net revenue c/	-40,893	-28,507	-16,121	-50,491	-38,105	-25,719
6,000	Total revenue	594,000	648,000	702,000	594,000	648,000	702,000
	Operating cost:						
	Annual	217,752	222,207	226,662	220,594	225,049	229,504
	Hourly	417,944	417,944	417,944	453,469	453,469	453,469
	Total b/	635,696	640,151	644,606	674,063	678,518	682,973
	Total net revenue c/	-41,696	7,849	57,394	-80,063	-30,518	19,027
12,000	Total revenue	1,188,000	1,296,000	1,404,000	1,188,000	1,296,000	1,404,000
	Operating cost:						
	Annual	367,101	376,011	384,921	372,784	381,694	390,604
	Hourly	803,721	803,721	803,721	874,771	874,771	874,771
	Total b/	1,170,822	1,179,732	1,188,642	1,247,555	1,256,465	1,265,375
	Total net revenue c/	17,178	116,268	215,358	-59,555	39,535	138,625
18,000	Total revenue	1,782,000	1,944,000	2,106,000	1,782,000	1,944,000	2,106,000
	Operating cost:						
	Annual	506,233	519,598	532,963	514,759	528,124	541,489
	Hourly	1,203,530	1,203,530	1,203,530	1,310,105	1,310,105	1,310,105
	Total b/	1,709,763	1,723,128	1,736,493	1,824,864	1,838,229	1,851,594
	Total net revenue c/	72,237	220,872	369,507	-42,864	105,771	254,406
22,500	Total revenue	2,227,500	2,430,000	2,632,500	2,227,500	2,430,000	2,632,500
	Operating cost:						
	Annual	592,225	608,931	625,637	602,883	619,589	636,295
	Hourly	1,486,549	1,486,549	1,486,549	1,619,774	1,619,774	1,619,774
	Total b/	2,078,774	2,095,480	2,112,186	2,222,657	2,239,363	2,256,069
	Total net revenue c/	148,726	334,520	520,314	4,843	190,637	376,431

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 15.--Southern peas: Annual net revenue for freezing plants with selected hourly processing capacities and 700 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$175/ton			$200/ton		
		Finished product price (cents/pound)					
		22.0	24.0	26.0	22.0	24.0	26.0
		dollars					
1,500	Total revenue	207,900	226,800	245,700	207,900	226,800	245,700
	Operating cost:						
	Annual	75,550	77,109	78,668	76,545	78,104	79,663
	Hourly	166,853	166,853	166,853	179,295	179,295	179,295
	Total b/	242,403	243,962	245,521	255,840	257,399	258,958
	Total net revenue c/	-34,503	-17,162	179	-47,940	-30,599	-13,258
6,000	Total revenue	831,600	907,200	982,800	831,600	907,200	982,800
	Operating cost:						
	Annual	250,247	256,484	262,721	254,226	260,463	266,700
	Hourly	578,551	578,551	578,551	628,286	628,286	628,286
	Total b/	828,798	835,035	841,272	882,512	888,749	894,986
	Total net revenue c/	2,802	72,165	141,528	-50,912	18,451	87,814
12,000	Total revenue	1,663,200	1,814,400	1,965,600	1,663,200	1,814,400	1,965,600
	Operating cost:						
	Annual	431,544	444,018	456,492	439,501	451,975	464,449
	Hourly	1,115,097	1,115,097	1,115,097	1,214,567	1,214,567	1,214,567
	Total b/	1,546,641	1,559,115	1,571,589	1,654,068	1,666,542	1,679,016
	Total net revenue c/	116,559	255,285	394,011	9,132	147,858	286,584
18,000	Total revenue	2,494,800	2,721,600	2,948,400	2,494,800	2,721,600	2,948,400
	Operating cost:						
	Annual	602,473	621,184	639,895	614,410	633,121	651,832
	Hourly	1,665,260	1,665,260	1,665,260	1,814,465	1,814,465	1,814,465
	Total b/	2,267,733	2,286,444	2,305,155	2,428,875	2,447,586	2,466,297
	Total net revenue c/	227,067	435,156	643,245	65,925	274,014	482,103
22,500	Total revenue	3,118,500	3,402,000	3,685,500	3,118,500	3,402,000	3,685,500
	Operating cost:						
	Annual	712,228	735,617	759,006	727,149	750,538	773,927
	Hourly	2,061,567	2,061,567	2,061,567	2,248,082	2,248,082	2,248,082
	Total b/	2,773,795	2,797,184	2,820,573	2,975,231	2,998,620	3,022,009
	Total net revenue c/	344,705	604,816	864,927	143,269	403,380	663,491

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 16.--Squash: Annual net revenue for freezing plants with selected hourly processing capacities and 100 hour seasons a/

Hourly finished product capacity	Item	Raw product cost					
		$80/ton			$100/ton		
		Finished product price (cents/pound)					
		16.3	17.3	18.3	16.3	17.3	18.3
(pounds)		dollars					
1,500	Total revenue	22,006	23,355	24,706	22,006	23,355	24,706
	Operating cost:						
	Annual	52,096	52,207	52,319	52,223	52,334	52,446
	Hourly	26,926	26,926	26,926	28,514	28,514	28,514
	Total b/	79,022	79,133	79,245	80,737	80,848	80,960
	Total net revenue c/	-57,016	-55,778	-54,539	-58,731	-57,493	-56,254
6,000	Total revenue	88,020	93,420	98,820	88,020	93,420	98,820
	Operating cost:						
	Annual	143,293	143,739	144,184	143,801	144,247	144,692
	Hourly	66,233	66,233	66,233	72,587	72,587	72,587
	Total b/	209,526	209,972	210,417	216,388	216,834	217,279
	Total net revenue c/	-121,506	-116,552	-111,597	-128,368	-123,414	-118,459
12,000	Total revenue	176,040	186,840	197,640	176,040	186,840	197,640
	Operating cost:						
	Annual	221,531	222,422	223,313	222,548	223,439	224,330
	Hourly	118,379	118,379	118,379	131,085	131,085	131,085
	Total b/	339,910	340,801	341,692	353,633	354,524	355,415
	Total net revenue c/	-163,870	-153,961	-144,052	-177,593	-167,684	-157,775
18,000	Total revenue	264,060	280,260	296,460	264,060	280,260	296,460
	Operating cost:						
	Annual	297,590	298,927	300,263	299,114	300,451	301,787
	Hourly	178,810	178,810	178,810	197,868	197,868	197,868
	Total b/	476,400	477,737	479,073	496,982	498,319	499,655
	Total net revenue c/	-212,340	-197,477	-182,613	-232,922	-218,059	-203,195
22,500	Total revenue	330,076	350,325	370,576	330,076	350,325	370,576
	Operating cost:						
	Annual	331,183	332,852	334,524	333,088	334,757	336,429
	Hourly	217,919	217,919	217,919	241,743	241,743	241,743
	Total b/	549,102	550,771	552,443	574,831	576,500	578,172
	Total net revenue c/	-219,026	-200,446	-181,867	-244,755	-226,175	-207,596

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 17.--Squash: Annual net revenue for freezing plants with selected hourly processing capacities and 300 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$80/ton			$100/ton		
		Finished product price (cents/pound)					
		16.3	17.3	18.3	16.3	17.3	18.3
		dollars					
1,500	Total revenue	66,016	70,065	74,116	66,016	70,065	74,116
	Operating cost:						
	Annual	58,443	58,777	59,111	58,824	59,158	59,492
	Hourly	61,813	61,813	61,813	66,577	66,577	66,577
	Total b/	120,256	120,590	120,924	125,401	125,735	126,069
	Total net revenue c/	-54,240	-50,525	-46,808	-59,385	-55,670	-51,953
6,000	Total revenue	264,060	280,260	296,460	264,060	280,260	296,460
	Operating cost:						
	Annual	173,580	174,915	176,253	175,105	176,440	177,778
	Hourly	188,004	188,004	188,004	207,066	207,066	207,066
	Total b/	361,584	362,919	364,257	382,171	384,844	387,844
	Total net revenue c/	-97,524	-82,659	-67,797	-118,111	-103,246	-88,384
12,000	Total revenue	528,120	560,520	592,920	528,120	560,520	592,920
	Operating cost:						
	Annual	275,438	278,111	280,784	278,488	281,161	283,834
	Hourly	346,071	346,071	346,071	384,189	384,189	384,189
	Total b/	621,509	624,182	626,855	662,677	665,350	668,023
	Total net revenue c/	-93,389	-63,662	-33,935	-134,557	-104,830	-75,103
18,000	Total revenue	792,180	840,780	889,380	792,180	840,780	889,380
	Operating cost:						
	Annual	373,553	377,563	381,572	378,127	382,137	386,146
	Hourly	513,757	513,757	513,757	570,931	570,931	570,931
	Total b/	887,310	891,320	895,329	949,058	953,068	957,077
	Total net revenue c/	-95,130	-50,540	-5,949	-156,878	-112,288	-67,697
22,500	Total revenue	990,226	1,050,975	1,111,726	990,226	1,050,975	1,111,726
	Operating cost:						
	Annual	424,739	429,752	434,762	430,457	435,470	440,480
	Hourly	631,023	631,023	631,023	702,495	702,495	702,495
	Total b/	1,055,762	1,060,775	1,065,785	1,132,952	1,137,965	1,142,975
	Total net revenue c/	-65,536	-9,800	45,941	-142,726	-86,990	-31,249

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.

Appendix Table 18.--Squash: Annual net revenue for freezing plants with selected hourly processing capacities and 500 hour seasons a/

Hourly finished product capacity (pounds)	Item	Raw product cost					
		$80/ton			$100/ton		
		Finished product price (cents/pound)					
		16.3	17.3	18.3	16.3	17.3	18.3
		dollars					
1,500	Total revenue	110,026	116,775	123,526	110,026	116,775	123,526
	Operating cost:						
	Annual	64,985	65,544	66,099	65,620	66,179	66,734
	Hourly	96,794	96,794	96,794	104,734	104,734	104,734
	Total b/	161,779	162,338	162,893	170,354	170,913	171,468
	Total net revenue c/	-51,753	-45,563	-39,367	-60,328	-54,138	-47,942
6,000	Total revenue	440,100	467,100	494,100	440,100	467,100	494,100
	Operating cost:						
	Annual	197,513	199,741	201,968	200,055	202,283	204,510
	Hourly	302,368	302,368	302,368	334,138	334,138	334,138
	Total b/	499,881	502,109	504,336	534,193	536,421	538,648
	Total net revenue c/	-59,781	-35,009	-10,236	-94,093	-69,321	-44,548
12,000	Total revenue	880,200	934,200	988,200	880,200	934,200	988,200
	Operating cost:						
	Annual	328,221	332,677	337,131	333,303	337,750	342,213
	Hourly	574,026	574,026	574,026	637,556	637,556	637,556
	Total b/	902,247	906,703	911,157	970,859	975,306	979,769
	Total net revenue c/	-22,047	27,497	77,043	-90,659	-41,106	8,431
18,000	Total revenue	1,320,300	1,401,300	1,482,300	1,320,300	1,401,300	1,482,300
	Operating cost:						
	Annual	458,040	464,722	471,405	465,663	472,345	479,028
	Hourly	865,803	865,803	865,803	961,093	961,093	961,093
	Total b/	1,323,843	1,330,525	1,337,208	1,426,756	1,433,438	1,440,121
	Total net revenue c/	-3,543	70,775	145,092	-106,456	-32,138	42,179
22,500	Total revenue	1,650,376	1,751,625	1,852,876	1,650,376	1,751,625	1,852,876
	Operating cost:						
	Annual	526,372	534,723	543,078	535,902	544,253	552,608
	Hourly	1,057,101	1,057,101	1,057,101	1,176,221	1,176,221	1,176,221
	Total b/	1,583,473	1,591,824	1,600,179	1,712,123	1,720,474	1,728,829
	Total net revenue c/	66,903	159,801	252,697	-61,747	31,151	124,047

a/ Operating efficiency of 90 percent.

b/ Excluding depreciation and interest on initial investment and income taxes.

c/ Returns to building, equipment, and land.